THE MAGAZINE OF

Standards

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SEPTEMBER, 1959

THE MAGAZINE OF

Standards

Standardization is dynamic, not static. It means not to stand still, but to move forward together.

VOL 30 SEPTEMBER, 1959 No. 9

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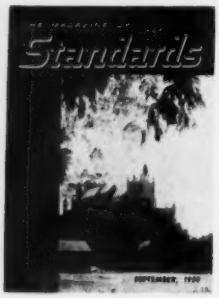

Our Cover: Many delegates to the International Electrotechnical Commission meeting in Spain, June 30-July 10, took advantage of special trips arranged by their Spanish hosts to see the beautiful countryside. Typical of old Spain is the Alcazar near Segovia, ancient home of Spanish kings, with special meaning for Americans as the palace of King Ferdinand and Queen Isabella. (Photo by S. David Hoffman.)

ASA

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Many technical committees developing international standards in the electrical field advanced their work during two weeks of meetings of the International Electrotechnical Commission in Spain early this year. The IEC Council and Committee of Action moved to strengthen the administrative set-up of IEC, to start new technical work, and to take final action on international recommendations submitted for approval by the technical committees.

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• REPORTS of the meetings of the International Electrotechnical Commission in Spain (page 261) point again to the quiet, hard work going on in many fields to improve exchange of products throughout the world. The comments of A. M. Nekrasov, president of the USSR National Committee of the IEC, in his Charles Le Maistre Memorial Lecture (page 266) also emphasize this point. Mr Nekrasov's paper does more—it underlines the remarks made by Roy P. Trowbridge in his article "Lack of Participation in International Standardization — A Threat to American Industry," (MAG OF STDS, July, 1959, page 201).

Cooperation on international standards is part of an over-all world problem. An American executive recently pointed out the stake U. S. industry has in international cooperation. A new world-wide economy "that staggers the imagination" is rapidly developing, declared Donald C. Power, chairman and chief executive officer of General Telephone & Electronics Corporation, June 30. Mr Power was speaking before the American Chamber of Commerce, Brussels, during an inspection tour of his company's European facilities. International sales of products manufactured by foreign operations of American companies will at least double in the next ten years as the trend develops, he said. However, this unprecedented growth will not be at the expense of total export sales of products made in the U. S. Mr Powers believes that these latter sales will probably increase as much as 40 to 50 percent during the decade.

Mr Power warned that any country that builds "a Chinese Wall to isolate itself will see the international parade passing it by."

He said: "Communications have brought the world more and more closely together. To be sure, the individual countries will need to adopt reasonable—and I stress 'reasonable' —measures to protect themselves in extreme situations, especially in industries vital to national defense, but the general pattern must be one of cooperation and flexibility in adjusting to new situations, because this is a rapidly changing world in which we Americans find ourselves."

This Month's Standards Personality

RANDOLPH PHILIP HOELSCHER, genial leader in the field of drawing standards, can be credited with bringing the American Standard Manual of Drafting Practice to its present state of development. As Professor Hoelscher himself points out, the Sectional Committee Y14, of which he has been chairman since 1949, now includes 18 subcommittees. All the standards are pretty well completed except for a few reports.

Professor Hoelscher has spent nearly his entire career in work for better understanding and improvement of engineering drawings. On August 31, he retired from the University of Illinois, but not from active work. He continues in standards as a member of Sectional Committee Y14, and in teaching as a visiting lecturer at the Southern Illinois University at Carbondale, Ill. "My interests will still include drawing standards and the whole standardization program," he says.

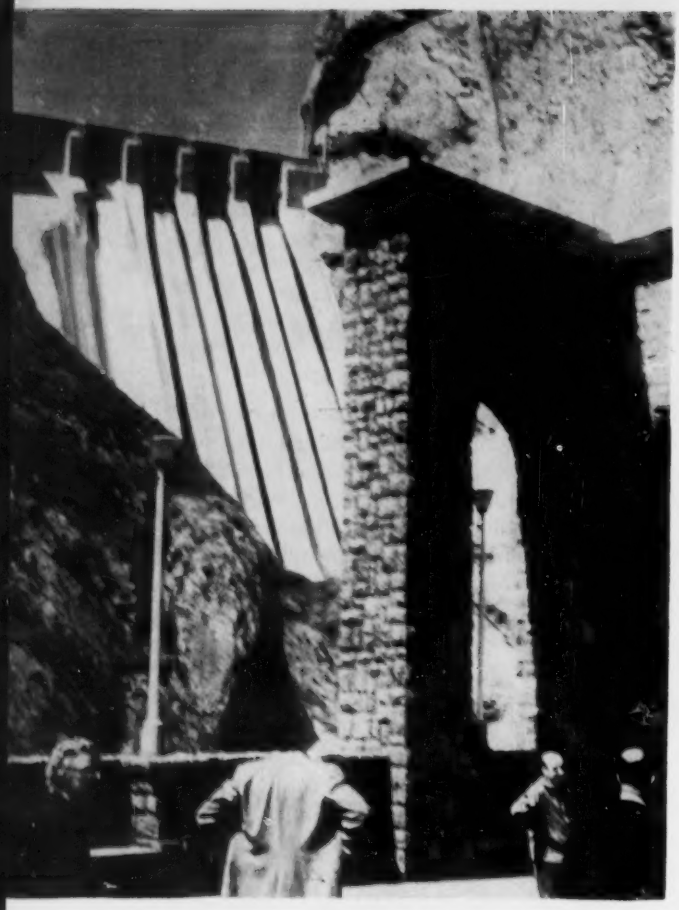
Professor Hoelscher started teaching engineering drawing at the University of Illinois in 1918. In 1931 he became a full professor. He has been at Urbana since 1918 except for an interval during which he served as associate dean of engineering sciences in the university's Chicago Undergraduate Division. This assignment was a real challenge to his administrative ability. He met the challenge by organizing the engineering division and employing 64 persons, all in 60 days, including the purchase of equipment. He returned to Urbana three years later where he was made head of the department of engineering drawing. This department was later changed to a degree-granting department in general engineering. He remained as head of the department until his retirement.

His work at the national level started when Professor Hoelscher became chairman of a subcommittee of Sectional Committee Z14, now Y14. In 1948 he became vice-chairman of the committee. He has been chairman for ten years. His promotion of the Y14 standards through seminars has been an unusual contribution to better understanding. He has also contributed to the ABC unification of drafting practice as chairman of the drafting session of the 1952 ABC Conference in New York, and as leader of the U.S. delegation to the 1957 conference in Toronto.

Professor Hoelscher is a member of the American Society of Civil Engineers, The American Society of Mechanical Engineers, the American Society for Engineering Education, and an individual member of the American Standards Association. He is also a member of the Society of Technical Writers and Editors and the Standards Engineers Society. He has given much of his time and effort to community welfare, school and church projects, as well as to university activities.

Professor and Mrs Hoelscher have two children — a daughter who is married, and a son who is an editor in Chicago.

Both Mr and Mrs Hoelscher enjoy boating, swimming, and fishing at their summer home in the Lac du Flambeau Indian Reservation in Wisconsin. There they transfer their gardening from their many flowers at Urbana to a collection of native flowers around their summer home.



TOP: New hydroelectric development in the Costa Brava district, northeastern Spain, visited by IEC delegates. OPPOSITE PAGE: A view of the rugged Spanish countryside where the development is located. (Photos by R. C. Sogge) BELOW: Registration for the 1959 general meeting of the International Electrotechnical Commission was in the imposing building, the Consejo Superior de Investigaciones Cientificas, Madrid. (Photo by S. David Hoffman).

THE IEC IN SPAIN

by S. DAVID HOFFMAN

SOME 700 ENGINEERS and slightly more than 300 of their ladies (senoras and senoritas) were on the scene in sunny Spain from June 30 to July 10, attending the Madrid 1959 sessions of the 24th General Meeting of the International Electrotechnical Commission.

Spain was indeed sunny, the temperature soaring well over 100 degrees on a number of days during the sessions. This, however, did not prevent the technical committees from scoring a good many advances in their work. Nor did it seem to hinder the excellent arrangements and services provided by the Spanish Electrotechnical Commission. The only concession to the heat was the rather unusual (for all except the Spanish) working hours, from 10 A.M. to 1 P.M., and from 4:30 P.M. to 7:30 P.M. The 1 to 4:30 interlude was scheduled to be used for luncheon and siesta, but many of the delegates and most of the service individuals, both Spanish and Central Office, used this time to good advantage to prepare papers, minutes, and other material needed for the meeting.

The meetings of the technical committees were held in the very fine buildings of the Consejo Superior de Investigaciones Cientificas. Forty-three members comprised the U.S. delegation, which was led by Richard C. Sogge, consultant, Industry Standards, General Electric Company. Mr Sogge is president of the U.S. National Committee of the IEC. In the delegation were also the other officers of the USNC—Hendley Blackmon, Westinghouse Electric Corporation, and V. M. Graham, Electronic Industries Association, vice-presidents; Vice Admiral G. F. Hussey, Jr, USN (Ret), managing director of ASA, treasurer; and S. D. Hoffman, ASA staff, secretary.

A highlight of the Council meeting (which is held every three years) was the appointment by acclamation of L. Ruppert as general secretary of the IEC. In proposing that Mr Ruppert be named general secretary, the president of the IEC, Dr Herlitz, recalled that the Commission had been without a general secretary since the death of Mr Le Maistre and that Mr Ruppert, although bearing the title only of secretary of the IEC, had, in fact, already been fulfilling the duties of the general secretary.

Also, as a fitting tribute, General E. E. Wiener of Belgium and Professor Dr J. A. de Artigas of Spain

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MR HOFFMAN is secretary of the U. S. National Committee of the International Electrotechnical Commission. He is head of the electrical department of the American Standards Association, and is also secretary of the Electrical Standards Board, and of the Acoustical Standards Board of ASA.

One of the principal centers of Madrid, the Puerto de Sol. (Photo by S. David Hoffman)

were made honorary presidents of the IEC in recognition of their hard work and long service to the Commission.

The Council also unanimously confirmed admission of Pakistan as a member of IEC, thus bringing the number of member countries to 34.[1]

A good deal of time was spent on a proposal that the dues of IEC member countries be increased. It was finally decided that the dues should be increased by one third, and the Committee of Action was authorized to make such further increases as may be required in the future. This power was given to the committee advisedly so that there will be no need to wait three years for another Council meeting or to call a special meeting of the Council to increase the dues again, since it was apparent to all that the one-third increase cannot possibly take care of the needs of the Central Office for more than the next year and a half or two years. The dues of the U.S. National Committee will thus be increased in 1960 from the present $8,400 to $11,200. It should be noted that the Central Office has thus been given the wherewithal to expedite the work of the technical committees. This puts an additional burden on each of the national committees, since each national committee will have to take steps to obtain additional financing so that it, in turn, can handle the ever increasing volume of work as it flows from the technical committees via the Central Office of IEC.

Dr Lal Verman, director of the Indian Standards Institution, reminded the Council that it had been agreed to hold the next general meeting of the Commission in New Delhi, and he proposed the dates of October 31 to November 14, 1960. These dates were accepted. Mr Ruppert reported that he would soon circulate a list of the technical committees which would meet in New Delhi.

A proposal was made by Dr Miletineanu, president of the Rumanian Electrotechnical Committee, that the IEC hold its 1961 general meeting in Rumania. He qualified this invitation by stating that if another country were chosen for that year, then Rumania would be quite happy to invite the IEC for a meeting at a later date. The Swiss National Committee also invited the IEC to hold its 1961 meeting in Switzerland, and the Italian National Committee, which had previously extended an invitation for 1961, postponed its invitation until 1962. Since it is the IEC policy not to take decisions concerning future activities too far in advance, the president agreed that this topic should be discussed at the next meeting of the Committee of Action, which will be held in either February or March 1960 in Geneva or Paris.

[1] The following 34 countries are members of IEC: Argentina, Australia; Austria; Belgium; Brazil; Bulgaria; Canada; China; Czechoslovakia; Denmark; Egypt; Finland; France; Germany; Hungary; India; Israel; Italy; Japan; Netherlands; Norway; Pakistan; Poland; Portugal; Rumania; Spain; Sweden; Switzerland; Turkey; Union of South Africa; United Kingdom; USSR; United States; Yugoslavia

Dr Ivar Herlitz (Sweden), president of IEC, announced to the Council that he had invited Professor G. de Zoeten of the Netherlands to give the 6th Charles Le Maistre Memorial Lecture in New Delhi. This announcement was received with acclamation.

This year's Charles Le Maistre Memorial Lecture, the fifth, entitled "International Standardization and the Development of Economic Relations between Countries," had been prepared by A. M. Nekrasov, chairman of the Russian National Committee of the IEC. However, he was unable to attend and the lecture was read very capably in English by B. P. Lebedev, general secretary of the Russian National Committee (see resume of the lecture page 266).

At the Committee of Action meeting, which was held immediately after the Council concluded its deliberations, the general secretary presented the Central Office Report. He noted that 12 IEC Recommendations are at present in the hands of the printer and will be available very shortly. Five publications have now appeared in the Russian-English version, and five others are being printed. Thanks are due to the USSR National Committee for its valuable help in preparing and proofreading the Russian-English versions, he commented. Thirty-seven draft recommendations were circulated for approval under the Six Months' Rule of the IEC between the period June 1, 1958 and May 31, 1959, the report points out. During this same period 16 documents were circulated for approval under the Two Months' Procedure (see list page 265).

The growth in the number of publications has raised the problem of uniform editing. Therefore, with the approval of the president, the Central Office has undertaken the preparation of a document covering the editing of standards, which it hopes will be finished before next year.

At the Committee of Action meeting, Professor E. Wegelius (Finland), president of the International Organization for Standardization, emphasized the cooperation between ISO and IEC, which functions as the electrical division of ISO.

The Committee of Action also discussed the proposal which had been made by the British National Committee that arrangements for individual or grouped meetings of IEC technical committees and subcommittees be made by each of the national committees so that such meetings could be held in various countries during the interim period between general meetings of IEC. This would make it possible to limit the general meetings to approximately 600 delegates and to meetings of 25 technical committees. Belgium, Italy, Sweden, India, Netherlands, and Germany indicated that they could probably arrange to hold such meetings in their countries from time to time.

The USNC, Mr Sogge reported, is exploring the possibility of financial support so that it may be able to invite the International Special Committee on Radio Interference (CISPR) to meet in the United States in 1961. It will endeavor to take similar steps for other committees, where appropriate, he said.

The Committee of Action appointed a number of chairmen of technical committees. Among these were:

Professor L. J. Hooper of the Worcester Polytechnic Institute as chairman of TC 4 on Hydraulic Turbines to succeed S. Logan Kerr, who has resigned.

T. M. Robie (U.S.) to succeed the late Paul Diserens, also of the U.S., as chairman of TC 19 on Internal Combustion Engines.

Photo courtesy Commercial Pirelli, S.A.

As one of the special events following the technical meetings, IEC delegates visited the Pirelli electric cable factory near Barcelona. Watching workmen vulcanize cable are, (left to right): Dr H. Yamashita, president, Japanese National Committee; Sr Renato Scotto, director, Cable Division, Pirelli Company; F. J. Wolfe, National Carbon Company; Sr Murilla, cable works manager, Pirelli Company; S. David Hoffman, secretary, U. S. National Committee, IEC.

Leon Podolsky (U.S.) as chairman of TC 40 on Components for Electronic Equipment to succeed E. F. Seaman, who has resigned.

W. A. Hamilton of the Westinghouse Electric Corp as chairman of TC 45 on Electrical Measuring Instruments Used in Connection with Ionizing Radiation.

Mr Hamilton's committee, TC 45, was of particular interest to the Committee of Action since it is a new committee. It was particularly noted that its scope is as follows:

To prepare recommendations referring to the functioning of electrical instruments and associated apparatus for the measurements generally in strong radiation fields.

A rather thorny problem for the Committee of Action was whether to establish a new technical committee to deal with cables, wires, and waveguides for use in telecommunications equipment and electronic devices using similar techniques. Fourteen out of 18 national committees were in favor of the formation of a new technical committee. Those not in favor were the USA, as well as Austria and Italy, and one country's answer was not clearly favorable or unfavorable. It was finally decided that a new technical committee should be formed. Mr Sogge, as president of the U.S. National Committee, and J. F. Stanley, as secretary of the British National Committee, prepared a proposal regarding the title and scope of the new committee. This emphasized that the committee will not deal with cables intended for use in public telephone networks, since this is of particular concern to the International Telephone Consultative Committee. They proposed, and their proposal was accepted by the Committee of Action, that the title of the new technical committee should be "Cables, Wires, and Waveguides for Telecommunication Equipment," and that the new committee at its first meeting should consider its title and scope with the view of clarifying them, if necessary. The German National Committee was appointed secretariat.

It had been suggested by the Polish National Committee that IEC/TC 27 on Electro-Heating, which was in a state of quiescence, should be reactivated. It was reported to the Committee of Action that the International Union of Electro-Heat (UIE) is preparing two drafts which will be sent to the IEC for its consideration. The Committee of Action finally decided that a round table conference with the UIE should be held to discuss this work, and that the ISO and CEE (International Commission on Rules for the Approval of Electrical Equipment) should be informed of the meeting and invited to attend.

The Committee of Action also designated France as secretariat of TC 41 on Protective Relays to replace Belgium, which has resigned, and reconstituted the subcommittee on safety regulations as the Advisory Panel on Safety of the Committee of Action, with J. P. J. Smoes of Belgium as its chairman. In addition, approval was given to a new scope for TC 13, as follows:

Electrical measuring instruments for measuring electrical quantities (such as indicating, recording, contact instruments, watthour meters, etc) and their accessories. Electronic measuring instruments and other electronic apparatus (having no measuring element) to be used in association with other instruments (valve voltmeters, signal generators, oscilloscopes, etc) for measuring electrical quantities.

The program of work of the newly created Subcommittee 13C, Recommendations for Signal Generators, was also approved. The USNC suggested that Subcommittee 14A, Magnetic Steel, be given the status of a full technical committee, since this work covers all magnetic steel used for electrical purposes. This suggestion was held for consideration at the next meeting of the Committee of Action. A proposal which had been prepared by TC 40 on Standard Temperatures and Conditions for Testing is to be published as an IEC Report rather than a formal IEC Recommendation since it is intended primarily for the guidance of technical committees. The Swedish National Committee has proposed that standardization be initiated in the field of digital computors and data processing machines. Since this proposal had been circulated rather late by the Central Office, however, it was agreed that the national committees should be given time to comment before decision is made by the Committee of Action.

Upon the recommendation of Subcommittee 39-2, Semiconductor Devices, and its parent committee TC 39, Electronic Tubes and Valves, the Committee of Action agreed to have the national committees consider the conversion of Subcommittee 39-2 into an independent technical committee.

A most important item, which was given its blessing by the Committee of Action, was the development of a modus operandi by the ISO/IEC Steering Committee on Nomenclature for Nuclear Energy, which also held a meeting in Madrid. The Steering Committee wholeheartedly approved a proposal put forth by Admiral Hussey, American Standards Association, which was stated as follows:

"(1) In order that the second edition of the IEC Vocabulary may not be delayed:
—that the IEC go forward with its work on the groups 'Nuclear Energy' of the second edition of the Vocabulary, in accordance with its usual procedure, and keep ISO/TC 85 on Nuclear Energy informed.
"(2) For the third and subsequent editions of the IEC Vocabulary:
—that the ISO Council and the IEC Committee of Action be invited to authorize the appointment of a joint technical coordinating committee consisting of three or four experts from each organization in order to obtain the necessary coordination between ISO and IEC definitions on nuclear energy, these experts to have full power to reach decisions without further reference to the Steering Committee. The Steering Committee should continue in its present form to deal only with questions of principle and meet as and when required."

In addition to having these recommendations approved by the IEC Committee of Action, it was also noted that they would be submitted for approval to the Council of the ISO.

Meetings of the technical committees were extremely productive. Seven documents produced by them were accepted for final publication (see list bottom of page). In addition, 40 draft recommendations were accepted for circulation to the national committees (see list bottom of page).

In addition to the meetings of the technical committees, there were many visits which, both technical and social, were well attended despite the excessive heat. The technical visits during the sessions of the committees were as follows:

Reactor of the Junta Energia Nuclear, "Centrao Juan Vigon" — first Spanish experimental reactor, recently opened, with physical, chemical, and medical laboratories, and pilot chemical and metallurgical industrial installations.

Madrid Electricity Company — visits to different transformer installations of the Hidroelectrica Espanola.

Isodel-Sprecher, S.A. — high-voltage switchgear factory.

D. Fecha, S.A. — power transformer factory, capacitors, and miscellaneous components for electrical installations.

Special invitation to visit the Permanent Exhibition of the National Institution for Industry.

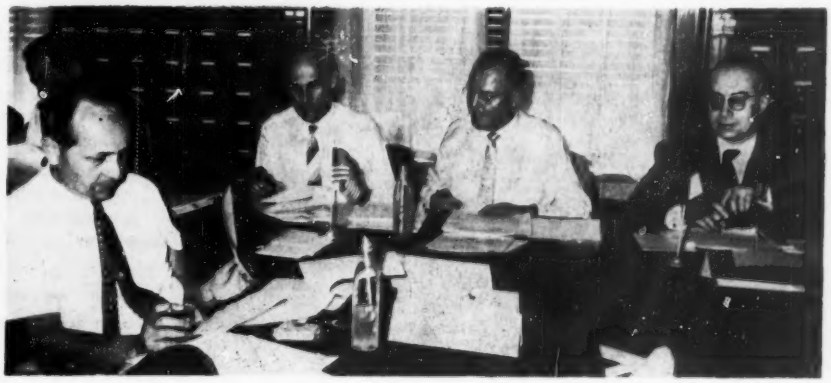
F. Marconi, S.A. — electronic equipment factory.

G. Osram — lamp factory; incandescent and discharge lamps.

H. Elibe — fluorescent lamp factory (Westinghouse license).

In addition, there were post-meeting tours to Salamanca and Galicia, Spanish Levant, Andalusia, Catalonia, Santander, Bilboa, San Sebastian.

The Spanish National Committee had a rather large social program arranged, which was also well attended. During one of these activities, a sports festival, the visitors learned that in Spain the rain does not always stay "mainly on the plain." Although the delegates were soaked, they still enjoyed the spectacle.



At the meeting of the Subcommittee on Semiconductor Devices, IEC/TC 39-2 (left to right): T. Foldesi, electrical engineer, Hungarian Office for Standardization; H. B. Fancher, general manager – Semiconductor Products Department, General Electric Company, Syracuse, N. Y.; V. M. Graham, associate director, Electronic Industries Association, chairman; *J. M. Mercier, Syndicat des Industries des Tubes Electroniques, Paris.*

Draft Recommendations Accepted for Publication

IEC/TC	TITLE
24	Electric and Magnetic Magnitudes and Units:
	Recommendation concerning the sign of reactive power
36	Insulators:
	Specifications for bushings for alternating voltages above 1000 v
	Recommended standard for ball and socket couplings of string insulator units
35	Primary Cells and Batteries:
	Additions to Publication 86
39	Electronic Tubes and Valves:
	Addition to Sheet 67, II-1a of Publication 67
	Subminiature outlines to be added to Publication 67
	Addendum and Corrigendum to Publication 67

Draft Recommendations Accepted for Circulation to the National Committees

IEC/TC	TITLE
3	Graphical Symbols:
	Symbols for elements of tubes, valves, and rectifiers
	Symbols for switchgear accessories
	Symbols for measuring instruments and electric clocks
9	Electric Traction Equipment:
	Revision of Publication 48: IEC Rules for Electric Traction Motors
17	Switchgear and Controlgear:
	Proposals for amendments to Publication 56-1 concerning asymmetrical breaking capacity of circuit breakers
	Guide to the testing of circuit breakers with respect to the switching of overhead lines on no load
	Recommendations for low-voltage switchgear and controlgear, Chapter I, Part I, Low-voltage distribution switchgear
19	Internal Combustion Engines:
	IEC publication on reciprocating internal combustion engines (excluding carburetor type). Part I, Specification
22	Power Converting Equipment:
	Recommendations for monocrystalline Semiconductor rectifier cells, stacks, assemblies, and equipments

Draft Recommendations Accepted for Circulation to the National Committees (cont.)

IEC/TC	TITLE
24	Electric and Magnetic Magnitudes and Units:
	Supplementary text to form part of the recommendation concerning the rationalization of the electromagnetic field equations
	Draft recommendations concerning the name to be given the MKSA system
28	Insulation Coordination:
	Application guide for equipment located in exposed situations
34	Lamps and Related Equipment:
	Revised proposals by PRESCO for the third edition of Publication 64: Tungsten Filament Lamps for General Lighting Service
	Revised proposals by PRESCO for the second edition of Publication 81: Tubular Fluorescent Lamps for General Lighting Service
	Draft IEC Code for the designation of projector lamps
	Draft standard sheets for plug part of capless photoflash lamp, lampholder and gages
	Draft standard sheets for pre-focus cap, P 45 t - 41, for European asymmetric beam automobile head lamp
	Draft standard sheet for BA 7 automobile cap
	Draft standard sheets for the E 5, E 17, and E 27/51 x 39 Edison screw caps
	Proposal for gages for finished lamps fitted with E 27 and E 40 caps
	Proposal for gages for E 14 lampholders and lamps fitted with E 14 caps
	Revised proposals by COMEX for the second edition of Publication 82: Recommendations for Ballasts for Fluorescent Lamps
	Draft standard sheets for glassware for lighting fittings
	Minor amendments to three standard sheets: 7004-11A-1, 7004-14-2, 7004-49-2

IEC/TC	TITLE
35	Primary Cells and Batteries:
	Standardization of types, dimensions of batteries for flash guns, tests of battery 15 F 20
	Standardization of types and dimensions of batteries for transistor apparatus
	Standardization of two small batteries for hearing aids
	Modification of dimensions and tolerances of R1, R6, R7, and R14 batteries
	Reduction of the 2R22 batteries from 1200 to 1080 minutes
36	Insulators:
	Specification for post insulators intended for use in installations of rated voltage up to 1000 v and above
37	Lightning Arresters:
	IEC Publication 99, Part II, Expulsion Type Lightning Arresters
39	Electronic Tubes and Valves:
	Alteration of Sheet 67-I-22a of Publication 67
	Inclusion of the B8H base and gages in Publication 67
	A system of numbering of electrodes and designation of the units in electronic tubes
	Additional tube outlines to be added to Publication 67
	Measurement of hum and hiss
	Recommended practice for the preparation of drawings of electronic tubes and valves for IEC Publications
	Proposal for the revision of Publication 100: Recommended Methods for the Measurement of Direct Interelectrode Capacitances of Electronic Tubes and Valves
	Proposal for the preparation of outline drawings of picture and oscilloscope tubes
	Document on essential ratings and characteristics, with an appendix dealing with measuring methods

INTERNATIONAL STANDARDS AND THE DEVELOPMENT OF ECONOMIC RELATIONS BETWEEN COUNTRIES

The Fifth Charles Le Maistre Lecture

by A. M. NEKRASOV
Chairman, USSR National Committee, IEC

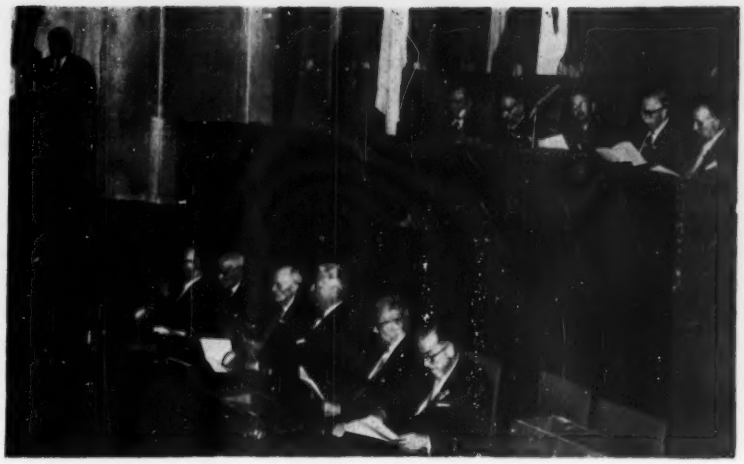
The Le Maistre Lecture is given annually in memory of Charles Le Maistre who gave outstanding service to IEC during his 49 years as General Secretary. The first four lectures were given by André Lange, France; Clarence H. Linder, USA; Professor Reginald O. Kapp, United Kingdom; and Professor Dr Richard Vieweg, Germany.

As Mr Nekrasov was not able to attend the IEC meeting, the lecture was read for him by B. P. Lebedev, general secretary of the USSR National Committee.

Following is a summary of the lecture presented at the meeting of the International Electrotechnical Commission, Madrid, Spain, July 3, 1959.

"INTERNATIONAL TRADE . . . solves problems concerning relations between peoples" and results in "attempts of the peoples of different countries to improve mutual understanding and to establish scientific-technical collaboration," Mr Nekrasov said in the Charles Le Maistre lecture presented at Madrid. "Our country, therefore, supports the extension of trade among all countries independently of their social-economic systems."

He paid tribute to the International Electrotechnical Commission and to the work of Charles Le Maistre for



B. P. Lebedev, general secretary, USSR National Committee of IEC (left), reading the lecture prepared by A. M. Nekrasov, chairman of the USSR National Committee. Top Row: *(unidentified); Professor Dr J. A. de Artigas, president, Spanish National Committee; Dr Ivar Herlitz, president, IEC; Dr P. Dunsheath, CBE, past president, IEC; C. Cebrian, chairman, Organizing Committee of the 24th IEC Meeting.* Lower Row: *M. L. Ruppert, general secretary, IEC; M. André Lange (France); Dr Reginald O. Kapp (United Kingdom); E. A. Wegelius (Finland), president, ISO; Professor Dr R. Vieweg, president, German National Committee; Dr Ing A. Roth, treasurer, IEC. M. Lange, Dr Kapp, and Professor Vieweg are former Le Maistre Lecturers.*

providing international recommendations for equipment in the electrical and radio fields, thus helping to remove misunderstandings due to different viewpoints between exporting and importing countries.

Mr Nekrasov pointed out that the Soviet Union exports goods such as boilers, thermal power stations with units of up to 50,000 kilowatt capacity, hydro-units of up to 10,000 kw capacity, locomotives, diesel generators, and diesel engines of from 10 up to 6,000 horsepower, electric locomotives for mines, small capacity transformers, electric motors and electric welding equipment. "All this we sell to Argentina, Burma, Viet-Nam, Greece, Iran, Iraq, India, Cambodia, China, Korea, Lebanon, Rumania, and many other countries," he said.

The following electric equipment is imported by the USSR, he said: electric locomotives, transformers, circuit-breakers (from France); blast-furnace transformers of 60 mva, automatic starters, h.f. heating equipment (from the German Federal Republic); capacitors, h.f. furnaces, and other equipment (from Sweden); flameproof sub-stations for mines and other electrotechnical equipment (from Belgium); different electrotechnical equipment (from England); mercury rectifiers for railways and transformers (from Hungary); electric locomotives and mobile sub-stations (from Czechoslovakia).

The USSR National Committee studies documents circulated by IEC technical committees, prepares answers and recommendations, and sends delegates to meetings, Mr Nekrasov said. Proposals worked out by USSR engineers in scientific research organizations and industrial enterprises are made at these meetings. At the same time, the National Committee influences the work on coordination and unification of its own national standards, using IEC Recommendations for this purpose, Mr Nekrasov said.

Describing the standardization of electrical equipment in the USSR, Mr Nekrasov pointed out that the USSR has its own national standards in practically all fields dealt with by the IEC Recommendations.

Electrical engineers use almost all the non-electrotechnical materials that mechanical and chemical engineers and other specialists have available, he pointed out. "We are interested, therefore, in many standards relating to other fields of technology and to a certain extent in many other international documents issued by a number of well-known international organizations, to the work of which we make practical contributions," he declared.

Mr Nekrasov then presented the system of standardization in electrical machine production in the USSR, the work on electric motors, which he explained has resulted in mass production and large series production of standard electric motors, and work on generators.

Commending the work being done to reach agreement on common terms and ideas, Mr Nekrasov said, "The USSR National Committee pays serious attention to the preparation of the International Electrotechnical Vocabulary, and tries in every possible way to improve it. The issue of each group of the Vocabulary is considered to be a great achievement." The USSR is preparing and publishing the Russian translation of the Vocabulary and is trying to convey the exact definitions approved by IEC Technical Committee No. 1, he explained.

The USSR is also particularly interested in the international work being done on graphical symbols, climatic and mechanical testing procedures for radio components and radio apparatus, and in general rules for methods of working out specifications for electronic equipment components, marking and coding of components for electronic equipment, and general rules for preparing specifications for resistors and capacitors.

"The activity of the International Electrotechnical Commission, inspired by the spirit of Le Maistre, in developing and extending international standardization promotes the expansion of technical and scientific relation among engineers of different countries and the development of economic relations between countries," Mr Nekrasov concluded.

Standardization in AIEE— Past and Present

by E. B. PAXTON

MR PAXTON, a Fellow of the American Institute of Electrical Engineers, is consultant, Industry Standards, General Electric Company, Schenectady. He served as chairman of the AIEE Standards Committee in 1950-51. Mr Paxton has been an active member for many years on ASA's Standards Council, Electrical Standards Board, and the U.S. National Committee of the International Electrotechnical Commission. He is chairman of Sectional Committee C50, Rotating Electrical Machinery, and technical advisor on rotating machines to the U.S. National Committee of the IEC.

RECOGNITION OF THE 75th ANNIVERSARY of the American Institute of Electrical Engineers would not be complete without a description of the part that the Institute has played in standardization and in the development of specific standards. For a few years after the founding of the AIEE in 1884, its transactions do not reveal concern with standardization. Although there was much technical interest in the problems of the day, the participating members were absorbed with technical subjects in which telegraphy occupied a prominent place; other popular subjects being problems of the incandescent lamp carbon filament, arc lighting, telephony, dynamoelectric machines, electroplating, and the prospects of electric transportation. The wide-scale use of small motors for driving sewing machines, fans, and appliances for other everyday uses was contemplated, but interest was centered in direct-current motors, with storage batteries considered the probable source of power.

The possibilities of alternating current were being discussed. Early transformers were called by various names: secondary generators, converters, and others.

The "Edison effect" was described at the first AIEE meeting with considerable speculation and wonderment and it was perhaps prophetic that the description was printed in the very first paper in the *Transactions*. Had it been better understood and its significance more fully appreciated, the development of electronics might not have lagged behind the development of power apparatus for so long.

As for standardization, the *Transactions* record a discussion that took place at one of the meetings held in 1887 on the adoption of a standard wire gage, thus giving an inkling that standardization was to have a place in Institute affairs. Early work regarding electrical units began in 1890 with the adoption of a resolution recommending the name of Henry for the unit of self induction and the appointment of a committee to recommend the magnitude of this unit. A wire table was submitted by another committee in 1893. But the standardization of apparatus was given its original major impetus at a meeting, which took place on the evening of January 26, 1898, on the subject of standardization of generators, motors, and transformers. This was quickly followed by the appointment of a Committee on Standardization, later called the Standards Committee.

The progress of standardization in the Institute during its first 50 years is well documented in the 50th Anniversary Number of *Electrical Engineering* of May 1934 (*AIEE Transactions, Vol* 53, 1934) by Comfort A. Adams, A. E. Kennelly, Charles F. Scott, and C. E. Skinner, who had an active part in AIEE standardization activities.[1] It would be needless to rehearse here what has been told so well. It would take a long list to name all the able and prominent engineers who had recognized the importance of standardization and had actively participated in its early development in AIEE, but such a list would include, in addition to the above, Francis B. Crocker, Dugald C. Jackson, B. G. Lamme, John W. Lieb, C. O. Mailloux, C. P. Steinmetz, Lewis B. Stillwell, Elihu Thomson, and many others. Thus, the position of AIEE as a pioneer of electrical standards was established.

Parallel activity in standardization was taking place in Europe. The International Electrotechnical Commission was conceived in 1904 and was organized in 1905 to deal with the standardization of electrical equipment internationally. It is of historical interest that AIEE formed the U.S. National Committee of the IEC in 1906 and maintained it until 1920.[2]

Although quantity alone is a poor measure, published Institute standards had expanded from a single volume of 160 pages in 1922 to 50 separate pamphlets in 1934. By 1934 some of the AIEE standards for important apparatus and of broad interest had been referred to the American Standards Association for approval as

[1] Several of these men had an important part in work on American Standards as well. Comfort A. Adams was first chairman of the American Engineering Standards Committee (now the American Standards Association) in 1919. C. E. Skinner followed as chairman from 1925-1927. A. E. Kennelly helped organize the International Electrotechnical Commission and at the time of his death in 1939 was honorary president both of the IEC and of the U.S. National Committee. He was chairman of ASA Sectional Committee C42, Electrical Definitions, for years, as well as chairman of the IEC and ASA committees on electric and magnetic magnitudes and units. Because of his services to pure science and on the international committees whose work led to adoption by IEC of the meter-kilogram-second system of units, Dr Kennelly was the first American to receive the Mascart Medal awarded by the Société Française des Electriciens.

[2] Now the USNC is affiliated with the American Standards Association and is serviced by the ASA staff. In 1920, the AIEE Board of Directors and the USNC had resolved to enlarge the committee and provide for the appointment of official representatives of various other societies, associations, or organizations. The committee had then functioned more or less autonomously until it was organized under the American Standards Association in 1931.

American Standards or to form a basis for American Standards.

By 1934 standardization in the electrical field had become an important subject of interest to other technical societies and trade associations. The need for unification or correlation of standards had become evident even earlier. When the American Engineering Standards Committee was formed in 1918, the stated object was to unify and simplify the methods of arriving at engineering standards, to secure cooperation between the different societies, and to prevent duplication of work. The AIEE was one of the five founder societies of the American Engineering Standards Committee, which became the American Standards Association later when engineering was no longer considered a desirable boundary. AIEE has contributed much technical material or standards that it originally developed to form a basis for American Standards, and it continues to support the principles on which ASA is founded.

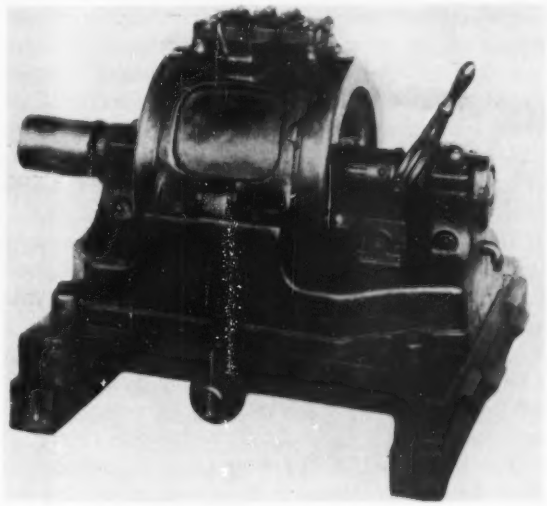
The AESC was formed the same year that the British Engineering Standards Association (now the British Standards Institution) was incorporated. The BSI is the national body in Britain charged with the responsibility of producing — by means of expert committees drawn from industry — standards for the benefit of every major British industry. These committees work directly under the supervision of the BSI. The founders of the AESC, in contrast, aimed to form a standards-approving and not a standards-making organization. Therefore, the development of standards in the United States has continued to be by independent organizations except insofar as cooperation under ASA procedure has made the process a joint effort.

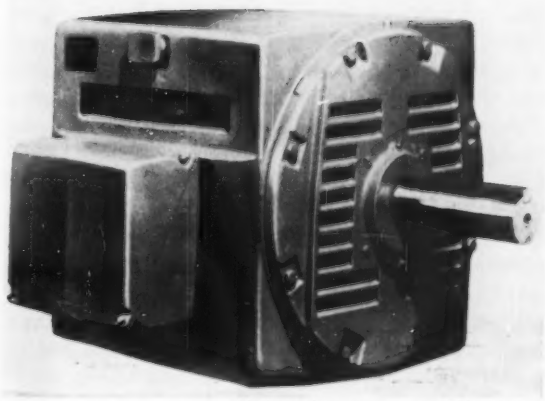
These organizations supply the initiative, the capabilities, and the committees to do the work. This method, though thoroughly democratic, is somewhat haphazard and sometimes wasteful through duplication of effort, but who can say that it is not the better method for producing good standards because it gives more freedom to individuals and organizations to advance in the direction they think is right and without hindrance or imposed delay. Practical application and the market place will in the end determine what work should survive.

Standardization work in the Institute is characterized by the fact that it is done by individual engineers from academic life, from technical organizations, and from all branches of the electrical industry. Although the desirability of having some types of standards formulated by individuals not formally representing organizations may be debated, engineers generally like to work in the climate of the Institute and enthusiasm to accomplish something is shown which might not appear under a more strictly regulated procedure.

During the first few years the Standards Committee formulated the Institute standards but soon it was necessary to have this done largely in subcommittees. Final approval of standards was given by the Board of Directors. In more recent years, with the tremendous growth of standardization activity, most of the work of developing and revising standards has been conducted by the technical committees in their respective fields. The Standards Committee, with representatives from a variety of fields who have had much experience in standardization, reviews all AIEE Standards Publications and approves them in the name of the Institute. It also works with ASA in approving those standards for which the Institute is sponsor and appoints the Institute representatives on ASA sectional committees.

Although it is not mandatory that AIEE technical committees engage in standards work, out of a total of 51 technical committees approximately 45 are concerned more or less with standards or related projects and many of these have subcommittees for particular subjects. Inasmuch as AIEE technical committees





Photographs courtesy General Electric Co.

Top: *One of the earliest induction motors for industrial use. Wound rotor with internal resistors and short circuiting device for starting. Installed in 1893, operated until June 1925. Rated 6.7 hp, 900 rpm, 3 phase. Weight 663 lb. Height 21 in. Width 22.5 in. Length 32 in. over-all.*

Bottom: *A modern squirrel-cage induction motor. Rated 125 hp, 900 rpm, 3 phase. Weight 1500 lb. Height 25 in. Width at base 25 in. Length 36.9 in. over-all.*

have responsibilities for obtaining AIEE papers and investigating all technical subjects within their respective scopes, they are in a favorable position to develop new ideas and methods that later find their way into standards of the Institute, American Standards, or even the standards of other organizations. AIEE technical sessions provide forums where such subjects may be discussed by all who are interested, thus obtaining broad consideration of proposed subjects at an early stage.

The AIEE Standards Committee has adopted the term "Standards Publications" to cover publications issued as standards, test procedures, recommended practices, recommended specifications, guides, general principles, or definitions. These words, when prefixed to the title of the subject covered, indicate approximately the nature of the publication. A distinction between these types of publications is not always clear-cut. A standard usually contains requirements or limits pertaining, for example, to rating, performance characteristics, or other qualities, and its principal intended use is most often for reference in specifications of buyer and seller. However, a standard may also contain definitions, test procedure, guide for application, or other information that may be pertinent to its interpretation and use.

The present list of AIEE Standards Publications contains about 70 publications (of which a third are in the trial use or proposed stage) of various types that are issued under the AIEE name only, and also a large number of electrical standards that have been approved as American Standards, many of which AIEE has sponsored, formulated initially, or contributed to technically.

The various AIEE test procedures (or codes) that apply to rotating electric machines are good examples of test procedures that describe tests used to verify standard requirements. The American Standards for Rotating Electric Machines, C50, require that such tests be in accordance with these test codes and one of them has been incorporated in the C50 series.

As an outstanding example of the "general principle" type of publication, AIEE No. 1 titled "General Principles Upon Which Temperature Limits are Based in the Rating of Electric Equipment" serves as a guide for the preparation of standards with regard to classes of insulating materials and temperature limits. It is widely accepted as a basis for the treatment of these subjects in electric machine and apparatus standards, not only by AIEE but by other standards-making bodies.

A recommended specification contains text material that a buyer may use verbatim in preparing a specification or which he may use as a standard and to which he may simply refer.

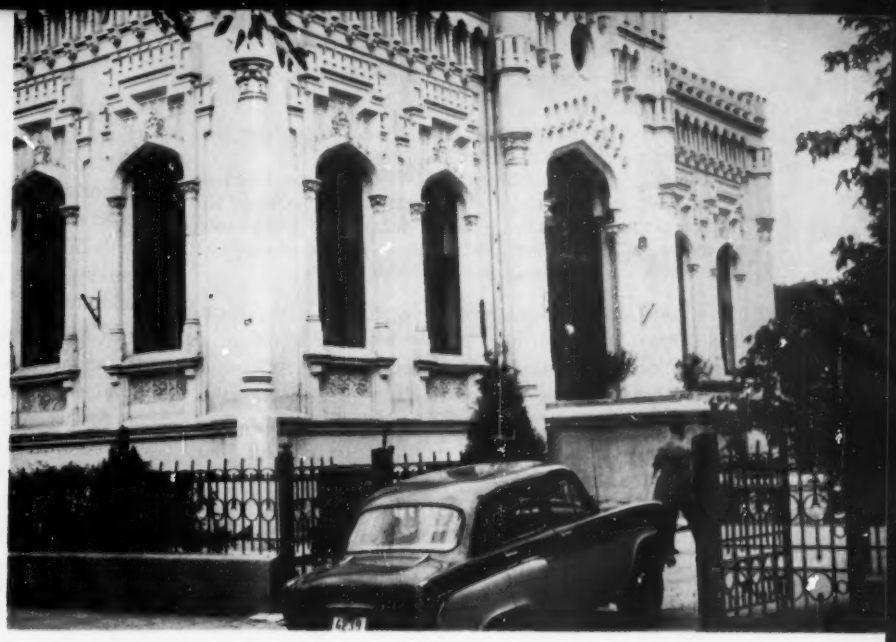
Guides may contain useful information to assist, for example, in the operation, maintenance, construction, or application of equipment or installations.

The standards for many of the old and well established lines of apparatus are most often subject to refinement rather than complete replacement and many of these standards projects have been placed under ASA procedure in which there is participation by representatives of societies and trade associations that have an important interest in them. The majority of such standards are those that are often referenced in orders and specifications in commercial transactions. AIEE takes an active part in electrical projects that are processed in ASA sectional committees. It serves as sponsor or joint sponsor under ASA procedure for 15 projects in the electrical field and it has representatives on 70 ASA sectional committees. In recent years AIEE practices have been revised to bring about closer liaison between these representatives and the technical committees, not only by consulting the technical committees when such representatives are appointed, but by endeavoring to have such representatives informed by the technical committees in the interest of coordination of technical work. By these procedures, the Institute is striving to maintain the interest of its technical committees in standardization work, and yet still obtain the benefits of ASA procedures as developed through the appropriate sectional committees.

The enduring quality of much of AIEE's early work on standards has been due to a principle established at the beginning that AIEE standards should be of a fundamental technical nature such as relates to the terms and conditions which characterize the rating and behavior of electric equipment, and tests for determining performance characteristics. AIEE has traditionally avoided standardization of dimensions, specific sizes or ratings, or details of construction "lest the progress of design should be hampered."

It is a precept applying equally well to standardization in all fields that standards should not attempt to fix limits or methods in advance of what may be demonstrated by experience to be good practice. Such standards might soon have to be replaced and in the meantime might lead in the wrong direction. Also, experience has shown that even the best standards are subject to change with changing conditions and development of the art. Since the use of standards is entirely voluntary, standards that do not meet current needs will undoubtedly be disregarded, as has often been the case, and thus they will not serve to prevent innovations, although they may cause delay and confusion. Therefore the Institute finds it essential to be alert to the need for changes, and to provide reasonable procedures that will facilitate prompt revision of standard publications as soon as the need is clearly ascertained.

Standards that have the acceptance of both users and manufacturers provide great savings when fully used. The AIEE, as a professional technical society with individual members engaged in all branches of the electrical industry, has recognized the important contribution made by standardization to the sound progress of the whole electrical industry.



The meetings of STACO were held at University House, Bucharest, Rumania. (Photo by S. David Hoffman.)

STACO MEETINGS IN RUMANIA

by S. DAVID HOFFMAN

BASIC PRINCIPLES OF STANDARDIZATION and broad problems that cut across many fields were considered by the Standing Committee for the Study of Scientific Principles of Standardization (STACO) of the International Organization for Standardization during its meeting in Bucharest, Rumania, June 20 to 25. As indicated by its title, the committee's scope covers the type of problems that arise in the application of different systems of units and in the choice of preferred number series rather than problems concerning specific standards. The committee is concerned, for example, with demonstrating that standards may be written so that they can be applied in different countries and different industries no matter what units of measure are used.

The recommendations made by STACO must be approved by the ISO Council and by the IEC Committee of Action prior to their distribution to all technical committees of ISO and IEC as a guide in their work.

Attending the meeting in Rumania were 14 delegates from 11 different nations. J. W. McNair, technical director of the American Standards Association, serves as the technical expert of ASA on this committee. Since he was unable to attend, he was represented by the writer.

Possibly the most important item considered by STACO at the Rumania meeting was a resolution concerning the inch-millimeter systems of linear measurement. This resolution is of great importance to ASA since it is, in substance and practically in wording, the same as a statement of policy which was approved by ASA's Board of Directors on June 19, 1959. The resolution adopted by STACO reads as follows:

"Regarding the difficulties in international standardization because of the existence of two systems of linear measurements in the work, STACO, as a scientific body, again draws attention to the necessity of including in international recommendations, wherever possible, only one series of linear dimensions of standardized products.

"STACO further acknowledges the realistic sense of the ISO Council Resolution (Harrogate 1958-14) which in an exceptional case permits in ISO Recommendations two series of dimensions when due justification for this is provided.

"Before taking a final decision as to whether to include in a draft recommendation two series of dimensions, a technical committee, subcommittee, or working group should first examine possible alternatives in the following sequence:

"(a) Is it a case where a single series, expressed in one system of measurement only, will be generally acceptable.

"(b) Is it a case where a single series will be accepted; derived from one system but expressed in both systems by exact translation. In such cases the system from which the series was derived should be stated first and the translation into the other system should be stated second.

"(c) Is it a case where a single series can be brought about

by a selection from existing sizes, some being taken from the metric practice, and others from inch practice.
"(d) Is it a case where interchangeability can be achieved between two series which have not identical dimensions in all respects. In such cases the mode of designation is important to ensure which sizes expressed in inches are interchangeable with which sizes expressed in millimeters."

A good deal of time was also spent by STACO on the preparation of a document which would contain a description of the duties and objectives of STACO and all of the resolutions adopted to date, together with the corresponding ISO Council resolutions or actions. This document will, of course, be submitted to both the ISO Council and the IEC Committee of Action.

A report prepared by Dr J. Oderfeld of Poland on the aim of standardization was another item considered by STACO. This report, which was extremely well received, will be revamped and will be considered as the basis for a possible STACO resolution.

For the last three years STACO has been considering a recommendation concerning homogeneous formulae which are valid for all systems of units. It was readily agreed that where a formula appears in a standard it should be homogeneous, i.e., dimensionally invariant rather than empirical, so as to avoid difficulties which occur because of the use of different systems of units in different parts of the world. To make certain that equations are valid not only for one single system of units but for all systems, STACO recognized the use as far as possible of dimensionally invariant equations which are valid for all coherent systems of units and noted that all physical equations presenting the same dimensions on both sides of the equation satisfy this condition. The resolution includes an appendix which spells out the details of how and why to write a dimensionally invariant equation and includes the necessary definitions.

STACO was also concerned with increasing the use of the theory of probability and statistical bases in the development of standards. A resolution will eventually be forthcoming on this topic, but meanwhile each of the countries represented in STACO has been asked to prepare a bibliography of the papers available in its country on the use of these tools in the field of standardization.

Among the other items discussed, possibly the most important is the task which STACO has assumed of preparing definitions of the term standardization, and related nomenclature. Dr Y. Voorhoeve of the Netherlands was appointed chairman of a working group of three, with J. Birlé of France and T. R. B. Sanders of the United Kingdom, to explore this problem. They will shortly circulate a questionnaire to the members of STACO to determine what terms should be included in the STACO definitions and what definitions for these terms are in use in the various countries.

The next meeting of STACO was not specifically set but will be either in New Delhi or Sweden, just prior to or after the IEC or ISO meetings next year.

Dr H. Tornebohm, Sweden, past president of ISO, explains a point at the blackboard during the STACO meeting. At far end of table are A. Pallez, secretary of STACO, and A. Caquot (France), STACO president. Facing camera in foreground is A. Salageanu, Rumania.

Rumanian hosts and other delegates at the STACO meeting (left to right): V. Tkatchenko, USSR; A. Salageanu, Rumanian standards association; I. Miletineanu, president, Rumanian National Committee of IEC; O. Sturen, Sweden.

STANDARDS FOR INDEXES

by ANNE J. RICHTER

WITH THE BURGEONING OF HUMAN KNOWLEDGE in printed or documentary form during the past decades, the importance of indexes has come to the fore. As more and more research is undertaken, the necessity and the growing demand for accurate and quick referral to previously reported work have become more and more apparent.

Therefore, the approval in May of this year of an American Standard Basic Criteria for Indexes marks a definite step forward, affecting not only the book trade and the magazine and library world but everyone who uses printed material, whether it be for his education, for personal pleasure, or for serious research.

Until these criteria were established, the person consulting an index either found it *good* because it led him easily and accurately to the information sought, or *poor* because he floundered around looking up this possible lead or that unsuccessfully. Or, worse still, he found no index at all. Now, certain basic standards have been set down, and publisher and public alike at least have a gage as to what an index should contain and how it should be arranged.

Indexing as a vocation, like Topsy, "just growed." Few of the practitioners have had any formal training in their job, unless they were library school graduates, for there is still a relative scarcity of courses in indexing procedures. Most indexers either have been trained by the old apprentice method or are self-taught by long use of indexes in their editorial work or research.

Indexing is a skill that calls for wide background knowledge in varied fields, a good sense of judgment, imagination in trying to guess how other people's minds will work, in order to provide useful headings and cross references, and practicality, in order to make the best possible index within the limits prescribed by policy and by the economic necessities of the time and pages available.

All too often a book has to be indexed under great pressure of time in order to meet a publication date. Only preliminary work can be done until the material is in page proof, and then the deadline is imminent.

The question as to whether an author should index his own book was considered and the recommendation was that since "objective analysis of the text is the basic requirement for a good index, it is generally advisable that the index be devised by a qualified person other than the author. The author can be of great help to the indexer in the analysis of the text, the selection of subject headings, etc; but the author should beware of the tendency to impose on the index his own biases or his own vocabulary."

Mrs Richter, book editor, R.R. Bowker Company, is chairman of the Z39 Subcommittee on Indexing, and vice-chairman of Sectional Committee Z39, Standardization in the Field of Library Work and Documentation.

The indexer has been "the forgotten man" for all of time; therefore, the recommendation also followed that "since indexes are of great value to all types of research, indexers should be given proper credit for their contribution. It is suggested that indexers be given credit by name in the publication indexed, and that book reviewers be persuaded to comment on absence or quality of indexes in their reviews.

But the Basic Criteria for Indexes were not set down to cover only books by any means. There are indexes to encyclopedias; both annual and cumulative indexes to periodicals and newspapers; indexes to documentary material of various sorts; and indexing services to material of similar interest in periodicals, annuals, and other sources. ("Chemical Abstracts" or "Readers' Guide to Periodical Literature" are examples of such services.) All of these various types of indexes were considered by the Z39 Subcommittee on Indexing.

The Z39 Committee of the American Standards Association is responsible for standardization in the field of library work and documentation and is sponsored by the Council of National Library Associations, an organization made up of 11 national library groups[1] representing various phases of library interests. The Z39 Committee, now under the chairmanship of Robert E. Kingery of the New York Public Library, has a membership of over 30 representatives of library organizations, libraries, government agencies, trade associations of publishers, other ASA committees, etc.

It was in the spring of 1956 that the Z39 Subcommittee on Indexing was formed. Its membership comprised representatives of encyclopedia and book publishers, university presses, indexing services, newspaper indexes, libraries such as the United Nations Library, Library of Congress, and New York Public Library, library associations, and practicing indexers. Every effort was made to provide all possible points

[1]American Association of Law Libraries; American Documentation Institute; American Library Association; Association of American Library Schools; Association of Research Libraries; Catholic Library Association; Council on Documentation Research; Medical Library Association; Music Library Association; Special Libraries Association; Theatre Library Association.

of view and the fact that it took over six months to achieve acceptance of a definition of what an index is attests to the wide divergence of representation. This is what the committee finally agreed an index is:

"*Definition of an Index* — Within the fields of library practice and documentation, an index is a guide to the contents of any reading matter or other documentary materials, which provides a systematic, sustained subject analysis of the contents of such materials arranged according to alphabetical, chronological, numerical, or other chosen order. Each entry is followed by page number, paragraph number, or other indicator showing the exact location of the reference."

In addition, the Criteria contains a glossary carefully defining Entry, Subject, Sustained, and Systematic; and a statement as to what an index is *not*:

"*What an Index Is Not* — An index is not a concordance, a table of contents, a mere list of words not in subject entry form, a glossary, a checklist, a history or background analysis of an action arranged chronologically."

As stated in the Aims and Purposes, the subcommittee did not attempt to set standards for every detail of indexing, since such details often must be determined on the basis of the type of material indexed and the readers to which the material is addressed. But the practices agreed upon represent the best known and accepted procedures in current indexing. Where there are known to be differences of opinion, such as in alphabetizing (shall multiple word headings be alphabetized word-by-word or letter-by-letter) a recommendation was made (in this case word-by-word, New York before Newark), with recognition of the fact that it was controversial.

What the committee did try to do was take up the following subjects and offer basic recommendations for each: Nature and variety of indexes; the content, organization, and style of an index; the entries (heading, subheading and modifications); alphabetizing and filing; inversions; references; typography, and cross-references.

There is considerable literature on the subject of indexing, as evidenced by the two selected bibliographies which are published as appendixes to the American Standard, one of some 25 books devoted all or in part to indexing (compiled by Eleanor F. Steiner-Prag of the R. R. Bowker Company) and the other of 36 magazine articles dealing with the subject (compiled by J. Myron Jacobstein, then of the Columbia University Law Library, now of the University of Colorado). However, specific reference to the indexing of periodicals is infrequent.

For the old hand at indexing, the American Standard Basic Criteria sets down in black and white certain approved practices, and attempts to give the indexer his just credit for his important contribution to the value of the material being presented. For the neophyte, the criteria should help to make his task somewhat more professional by at least giving him some rules of the game. As the dependence upon indexes becomes more evident as years go by and knowledge accumulates, may there be fewer and fewer neophytes and more and more old hands, trained not by the school of experience but by established courses now sadly lacking in our educational institutions.

Copies of American Standard Basic Criteria for Indexes, Z39.4-1959, are available at 80 cents per copy from the American Standards Association, Incorporated, 70 East 45 Street, New York 17, N.Y. Terms for quantity orders available on request.

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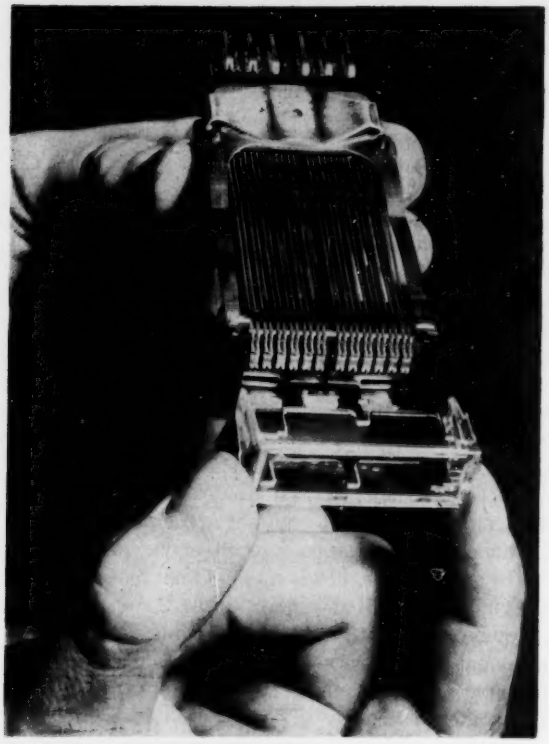
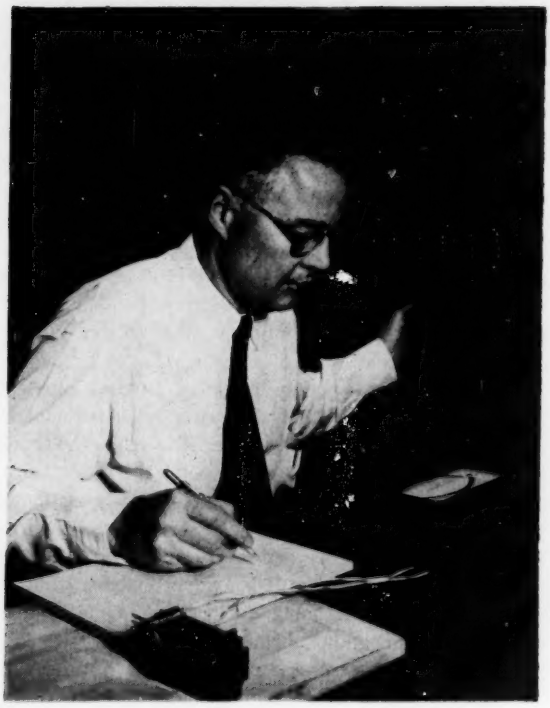


Photos: courtesy Bell Telephone Laboratories



Top: *This wire spring relay, newly designed by Bell Telephone Laboratories, is an example of one type of electromagnetic relay used in industry. From thousands of telephone connections it picks out the number being dialed.* Bottom: *Bell Telephone Laboratories engineer conducts tests on new wire spring relay.*

Relay Definitions Will Help Industry

by CHARLES F. CAMERON

MR CAMERON is acting head, Electrical Engineering, Oklahoma State University, and was chairman of the task force that prepared the draft of the new American Standard Definitions and Terminology for Relays for consideration by Sectional Committee C83.

IT HAS BEEN APPARENT FOR SOME TIME that definitions of terms as applied to electromagnetic relays would be of great value to industry. Therefore, a task force was appointed by Sectional Committee C83, Electronic Components, and the first meeting was held in November 1954. As a result of the work done, American Standard Definitions and Terminology for Relays, C83.16-1959,[1] was approved this year (April 28).

There are approximately 130 manufacturers of relays in the United States. The dollar volume of this business is difficult to determine, since several manufacturing plants devote their time exclusively to the

[1] Copies of American Standard C83.16-1959 can be obtained from the American Standards Association at $2.00.

making of relays for the telephone industry. It is quite probable that the volume is in the billion dollar class.

Relays are the critical component of most control systems, and, therefore, are used in many different types of equipment for both civilian and military purposes. The wide variety of applications makes an accurate statement of their use extremely difficult, however.

In January 1955, the National Association of Relay Manufacturers published a booklet, *Definitions of Relay Terms*. More than 60 thousand copies were distributed, a record that might well lead a person to ponder over the amount of interest in the subject. The booklet was compiled with the assistance of engineers from relay manufacturers, and formed a valuable basic document for the work of the C83 Task Force.

The task force, composed of relay users and the military services, as well as of engineers from relay manufacturers, had the benefit not only of the booklet but also of previous efforts by other groups. Much reference material was obtained from the American Standards Association, which assisted in clarifying many conflicting points. The group considered the material available and came to the conclusion that the publication issued by the National Association of Relay Manufacturers should be revised and expanded.

As the work progressed, the task force found that some confusion resulted from the use of the term "relay" in the American Standard for Relays Associated with Electric Power Apparatus, C37.1-1950. In the foreword of that standard it is stated, however: "The standard relates only to relays of types directly associated with power switchgear. It does not cover relays of types designed primarily for industrial control, excitation or governor regulating, telephone, traffic signal, or similar purposes."

Briefly, the electromagnetic relay was the subject under consideration by the C83 Task Force, whereas the induction disk relay was the primary concern of American Standard C37.1-1950. Both the C83 Task Force and Committee C37 were positive about the functions and definitions of relays. To have two different devices called by the same name did not help to settle the atmosphere. Under these circumstances, it could be expected that much effort would be required to come up with an acceptable definition of the term "relay." However, these efforts were coordinated by submitting the definitions to appropriate subcommittees of Sectional Committee C42 on Definitions of Electrical Terms. The definition agreed upon states:

"A relay is an electrically controlled device that opens and closes electrical contacts to effect the operation of other devices in the same or another electrical circuit."

The contents of American Standard C83.16-1959 are:

1. Definition of a Relay
2. Scope
3. Classification by Service Conditions

Contents of American Standard C83.16-1959 (Con't)

4. Classification by Method of Electrical Control
5. Classification by Mechanical Action
6. Classification by Enclosures
7. Characteristics
8. Rating
9. Illustrations
10. Definitions

Different schemes of classification were used in an attempt to remove ambiguous statements as well as to limit more clearly the scope of activity of the task force. As an illustration—should a *fast* relay be defined? It is obvious that a fast relay in one application would be extremely slow in another application.

Many questions were raised which were not answered satisfactorily, or perhaps it might be said that to have a complete solution to some questions would require considerable research. Since our knowledge about any subject is not static, this is a healthy situation. From an academic standpoint, it would have been stimulating to continue an investigation into all of the ramifications of the subject. This, however, would not have produced the end result desired—an American Standard.

Many terms such as "telephone relay" have been commonly used. Such a term does not convey the meaning which is implied. To quote from the standard, "A telephone relay is any relay used in a telephone switching system. As many forms of relays are used in telephone systems, the term has no concrete meaning in relation to any particular mechanical relay structure, and its use is not recommended. It has been used to designate a particular type of structure first identified with the Strowger or step-by-step telephone system, but this usage is to be discouraged for lack of generality."

Many characteristics of thermal relays are common with the electromagnetic relay. For this reason, the thermal relay was included in this standard. Some definitions and characteristics of the thermal relay are unique with that relay.

Under the heading of "Classification by Method of Electrical Control" an attempt was made to sort out the existing types as well as those which might be developed. The electromagnetic relays were listed as: moving iron (plunger, clapper, ball, rotary), moving permanent magnet, moving conductor, and electric coil. The thermal relays were classified as: bimetal drive, pressure drive, and expansion drive. No attempt was made to subdivide magnetostrictive devices, whereas the electric field devices were classified as piezoelectric, electrostrictive, and electrostatic. It is evident that the frontier of development was being explored in some of the foregoing classification schemes.

Much other interesting information was compiled in this standard. The last section includes the definitions of terms which are peculiar to relays. Several diagrams will be found in this publication which should clarify the definitions.

It is the opinion of those who have been concerned with it that this standard will be of great value to American industry.

NEW INTERNATIONAL RECOMMENDATIONS

ISO Recommendations are published by the International Organization for Standardization, and IEC Publications are issued by the International Electrotechnical Commission, Geneva, Switzerland. Copies are available from ASA.

IEC SPECIFICATION FOR ALTERNATING-CURRENT CIRCUIT BREAKERS. SUPPLEMENT TO CHAPTER I: RULES FOR SHORT-CIRCUIT CONDITIONS. *IEC Publication 56-1-A. 1959. Suppl. to second edition. $3.60.* Contains two additions to Chapter 1: (a) Recommendations for the unit testing by direct methods of circuit breakers for making capacity and breaking capacity, (b) Methods of determining inherent restriking voltage waveforms. Part A is divided into five sections: introduction, definitions, conditions with which the circuit breaker must comply, determination of the voltage distribution among units, and unit tests by direct methods. Part B consists of four sections: introduction, general summary of the recommended methods, and comparison of the methods in tabular form.

IEC SPECIFICATIONS FOR ALTERNATING-CURRENT CIRCUIT BREAKERS. CHAPTER II: RULES FOR NORMAL CONDITIONS. *Part 2: Rules for operating conditions; Part 3: Coordination of rated voltages, rated breaking capacities and rated normal currents. IEC Publication 56-3. 1959. First edition. $3.20.* Part 2 is divided into three sections: definition, rules for rating, and rules for tests. Part 3 lists the recommended rated voltages, etc, and contains tables showing the recommended interrelationship between these quantities.

Part 1: Rules for temperature rise, was issued in 1955 as IEC Publication 56-1.

This publication has been approved by 15 member-bodies of IEC. However, the United States National Committee stated that its approval of Part 2 was subject to alterations being made in Clauses 22, 27 up to and including 31, and 33, concerning rated and percentage values of auxiliary supply voltage. It has not been found possible, for the time being, to meet the U.S. requests, but rated voltages for the auxiliary supply voltages are under consideration and it has further been indicated in the text that the above mentioned percentage values are provisional and may be changed in a future edition.

RECOMMENDED METHODS OF MEASUREMENT OF RADIATION FROM RECEIVERS FOR AMPLITUDE MODULATION, FREQUENCY MODULATION AND TELEVISION BROADCAST TRANSMISSIONS. *IEC Publication 106. 1959. First edition. $3.60.* Contains descriptions of standardized methods of test for determining the radiation from broadcast radio and television receivers, so as to make possible comparison of the results of radiation measurements obtained by different observers. Limiting values of the various quantities for acceptable performance are not specified. The publication describes the measurement of radiation at frequencies below 30 Mc/s (radiation from receivers for a.m. broadcast transmissions and radiation caused by television receiver time-base circuits), and the measurement of radiation at frequencies between 30 and 300 Mc/s.

The publication has been approved by 13 member countries of the IEC. Germany and the United States, however, prefer to maintain their present procedure of measuring at 30 m and 100 ft distance, respectively, until further experience has been gained with respect to radiation measurements at 3 m distance in the frequency range 30-300 Mc/s.

RECOMMENDATIONS FOR CERAMIC DIELECTRIC CAPACITORS TYPE I. *IEC Publication 108. 1959. Ftrst edition. $4.00.* Relates to fixed ceramic dielectric capacitors of a type specifically suited for resonant circuit application or any other applications where low losses and high stability of capacitance are essential, but excluding capacitors for r.f. currents exceeding 1 ampere or for a reactive power exceeding 200 var, for telecommunication equipment and in electronic devices employing similar techniques.

The publication provides uniform requirements for judging the mechanical, electrical, and climatic properties of these capacitors, test methods, and a color code for marking of values of capacitance and tolerance. Recommendations are given for classification into groups according to their ability to withstand conditions as specified in IEC Publication 68, Basic Climatic and Mechanical Robustness Testing Procedure for Components.

RECOMMENDATIONS FOR FIXED NON-WIREWOUND RESISTORS TYPE II. *IEC Publication 109, 1959. First edition. $3.20.* Applies to fixed resistors of types other than wirewound, with a rated dissipation not exceeding 3 watts and a rated resistance value between 10 ohms and 22 megohms, suitable for use in circuits where high stability of the resistance is not of major imp rtance and for telecommunication equipment and electronic devices using similar techniques. The publication lays down uniform requirements for judging the mechanical, electrical, and climatic properties of the resistors, describes test methods, and gives recommendations for classification into groups according to their ability to withstand conditions as specified in IEC Publication 68, Basic Climatic and Mechanical Robustness Testing Procedure for Components.

CINEMATOGRAPHY. PHOTOGRAPHIC SOUND RECORD ON 35 MM PRINTS. *ISO Recommendation R 70. December 1958. Ftrst edition. $0.60.* Specifies the location and dimensions of variable area and variable density sound records for the photographic printing of sound on 35 mm sound motion picture prints, and the area scanned in the sound reproducer.

CINEMATOGRAPHY. PHOTOGRAPHIC SOUND RECORD ON 16 MM PRINTS. *ISO Recommendation R 71. December 1958. First edition. $0.60.* Specifies the location and dimensions of variable area and variable density sound records for the photographic printing of sound on 16 mm motion picture film perforated along one edge, and the area scanned in the sound reproducer.

PLASTICS. DETERMINATION OF TEMPERATURE OF DEFLECTION UNDER LOAD. *ISO Recommendation R 75. December 1958. First edition. $1.20.* The method of test recommended herein is suitable for plastics materials which are rigid at a room temperature of 20 to 23 C, and molded materials in thicknesses between 3.0 and 4.2 mm, as well as materials in sheet form in thicknesses ranging from 3 to 13 mm.

The test method covers a procedure for determining the temperature at which an arbitrary deformation occurs when the test specimens are subjected to arbitrary bending loads, under conditions of continually rising temperatures. Data obtained by this method may be used to predict the behavior of plastics materials at elevated temperatures only in applications in which the factors of time, temperature, method of leading, and fiber stress are similar to those specified in this Recommendation.

This is the twenty-fourth installment in the current series of rulings as to whether unusual industrial injury cases are to be counted as "work injuries" under the provisions of American Standard Method of Recording and Measuring Work Injury Experience, Z16.1-1954. The numbers in parentheses refer to those paragraphs in the standard to which the cases most closely apply. Decisions on unusual industrial injury cases are issued periodically by the Z16 Committee on Interpretations.

Sectional Committee Z16 is sponsored by the National Safety Council and the Accident Prevention Department of the Association of Casualty and Surety Companies.

INDEX TO CASES 400-600. An index to Cases 400-600 has now been completed. Arranged numerically by the number of the applicable paragraph of American Standard Z16.1-1954, the index includes the number of the case indexed and a key letter indicating what the decision was in each case. Each index reference includes a brief description of the case.

Reprints of Cases 400-600, with the Index, are now available from ASA at $1.50. Discounts for quantity orders may be obtained on request.

Are These Cases Work Injuries?

CASE 704 (5.3)

A "trucker" whose duties consisted of loading, trucking, and unloading bags of raw materials (usually weighing 100 lb each) with a two-wheel hand truck was handling 100-lb paper bags of ground limestone when he felt a sharp pain in his chest and shoulder. He reported this to his supervisor, but continued working that day. The next morning his arm and chest still pained him, and he had a numbness in his arm. He was sent to a physician who treated it as a strain, and returned him to lighter work.

The employee continued on the lighter job, but his arm did not respond to treatment, and a month later the physician referred him to a specialist who diagnosed the case as "Paget-Schroetter Syndrome," a rare congenital condition (a dilated vein in the chest). The doctors agreed that the man's work caused this condition to flare up. About two months later he underwent surgery, which consisted of cutting away part of the muscle to make more room for the blood vessel so that the vessel wouldn't be squeezed when the muscle contracted. The doctors claimed there should be no permanent disability.

Decision: This case should be considered a work injury and included in the rates on the basis that the employee had a physical deficiency which the doctors agreed had been aggravated by his work, resulting in disability.

CASE 705 (5.1)

An employee slipped on ice as he was carrying a 100-lb bag on his shoulder into a farmer's barn. He suffered pain in the groin, and rested a few minutes before he finished this delivery (about four more bags). At other stops he had to make before returning to the warehouse, he got help in unloading.

During the seven-year period before the accident, the company doctor had commented, on four examination reports, that there was an enlarged ring; that there was no hernia, but evidence of potential hernia; that there was no hernia; and finally that there was a hernia, with the recommendation that a truss should be worn or an operation performed. This latest report had been made nearly a year previous to the accident.

The company questioned whether the hernia was chargeable to the accident, since the man had evidently had a hernia nearly a year before the accident.

Decision: The hernia should be included in the work injury rates. The fact that there was a history of enlarged rings did not preclude counting this case.

CASE 706 (1.2.4)

One of the employee's jobs was to unload bulk grain from box cars with a power shovel. At various times he had bumped his shin against the shovel in the normal operating procedure, and he had developed a slight swelling in his leg at the point where he had often bumped his leg. An x-ray was made of the swollen leg, and consultation with an orthopedic surgeon was advised. The surgeon decided that a biopsy should be made to determine whether the repeated bumping had caused swelling or had called attention to a tumor already present.

The biopsy was performed, but revealed nothing wrong, and the man returned to his regular job after having been in the hospital and away from work. The company noted that the series of minor bumps had caused no trouble, and no

single bump had caused the man to enter the hospital, his hospitalization being for diagnosis.

Decision: This should be considered a work injury and included in the rates on the basis that the series of bumps caused a slight swelling which called for medical consultation and possible medical treatment, whether or not a tumor was found.

Case 707 [A1.6 (g)]

A supervisor of accounting was asked to leave some mail at the post office on his way home from work, and left early enough to accomplish the errand. He was absent from company premises, authorized by his employer, and acting in the interest of his employer. Arriving at the post office, the employee opened his car door, stepped onto the street, hit an ice patch, and fell. He injured his knee, resulting in time lost from work.

The company believed this injury could be classified under paragraph 5.12 as one which resulted from an external event beyond the control of the employer.

Decision: The injury to this man's knee should be considered as a work injury, and should be included in the rates in accordance with the actual days of disability. Paragraph 5.12 applies only to external events of major cataclysmic nature, and not to the ordinary hazards of whether, traffic, etc, which an employee may encounter outside the regular work place while on duty. In this case, the slippery sidewalk was a hazard of the environment into which the employee's work took him.

Case 708 (5.2)

An employee was engaged in his normal activity of dumping sacks of green coffee into a floor-level grating. The normal procedure was to position a bag weighing about 130 lb in front of the grating, then to topple it forward so that it would fall of its own accord with most of the coffee spilling into the grating. Then the bottom of the bag was grasped and lifted so that the remaining coffee could be dumped into the grating. While performing these duties, the employee experienced a pain in his back just after dumping the remaining coffee from the bag. At the time, he was in an almost upright position, and the coffee remaining in the bag which he was dumping weighed no more than 40 lb. The man continued working, but the pain became worse, and was quite severe by the end of his shift, at which time he reported to the superintendent. The following day, he was examined by the company doctor who prescribed light duty, but the man was in such obvious pain he was sent home on his own request. Later he stated that had he known certain facts he would not have taken time off from his job.

The doctor who treated the case did not believe this injury was one of overexertion because of the diminished weight of the bag being lifted at the time of the injury. The injured employee returned to unrestricted duty, and stated that he felt perfectly fit within three days after his accident, and no traces of pain or any other aggravation remained.

Decision: This case should be considered a work injury and included in the rates. Although the bag of coffee weighed considerably less at the time the symptoms became apparent than bags normally handled by this employee, the committee believed this injury did arise out of and in the course of employment.

Case 709 (5.2)

Facts not clear—no decision rendered.

Case 710 (5.13)

An employee received a blow to the head when an electric drill became lodged in a hole and the handle of the drill swung around and struck him. The injury was not reported until two days later, at which time the man reported to the company dispensary with a headache. The doctor hospitalized the man in order to observe his condition, which he later determined was merely a mild head injury and there were no aftereffects. The man was in the hospital for only 36 hours, and no medical treatment was given. The company did not believe this injury needed to be counted simply because the man failed to report, and especially because his stay in the hospital did not exceed the 48-hour limit.

Decision: This injury should be included in the rates as a temporary total disability on the basis that paragraph 5.13 specifically limits the time of hospitalization for observation to 48 hours from the time of an injury.

Case 711 (1.2.4)

A ball scrap machine operator was struck on the flexor surface of the right midthigh when a handle on the machine unexpectedly sprang open with considerable force. He was immediately treated at the company hospital, where examination revealed a small puncture wound but with an underlying defect in the fascia. X-ray examination revealed no bone injury. Under local anesthesia an incision was made through the skin, and a small defect in the fascia was found. This was repaired with silk, a large foam rubber pressure dressing with taping to limit the motion of the knee was applied, and the man was given appropriate medication.

Prior to being transported home, he was told by the operating surgeon that he could do light work sitting down, and it was agreed that arrangements would be made to pick him up at home the following morning. The projected job was a belt sanding job at which the operator customarily sits. This was a regularly scheduled job in another department of the same division, and it was expected that the injured man would do the regular job with the exception of getting and taking away shop trays of work. In this respect he would require help from another employee, the time involved being about 1/10 hour twice each day.

The following day the injured employee was taken to the company hospital where his general condition was good. After examination, he was agreeable to working for the rest of the day, and the surgeon believed it was medically appropriate for him to do so. However, apparently the hospital staff told the patient that if he did not care to work that day he could go home without incurring a disabling injury charge. The man's foreman was notified, and he was returned to his home for the remainder of the day. The next day he was transported to work, and worked his regular shift from that time on until able to resume a standing-up job.

The company asked whether the slight modification of the job performed by this employee for three weeks after his injury removed it from the category of a regularly established job; and whether the one day of lost time should be charged because of faulty interpretation.

Decision: The injury should be included in the rates with a time charge of at least one day, because one full day was lost. The fact that this resulted from incorrect interpretation of the standard does not alter this conclusion.

Case 712 [5.1 (c)]

While the employee was pulling on a crank that wound up a cable which closed or opened the damper on the plant exhaust stack, he felt a pain in his lower left side. He finished cranking and went back to his regular duties. A co-worker not more than ten feet away stated later that the employee in question did not clutch his side, exclaim he was hurt, or cease cranking. The employee himself said there was no great pain, then or later; he finished his shift, and did not report the injury to his foreman or fellow workers. Over the weekend he was in some discomfort.

Four days after the incident the employee reported to his supervisor, who promptly referred him to the doctor. Examination revealed a hernia.

Decision: This hernia should not be included in the work injury rates on the basis that the facts do not meet the requirements of paragraph 5.1 (c).

Case 713 (5.18)

Borderline case — not to be used as a precedent.

STANDARDS FROM OTHER COUNTRIES

Members of the American Standards Association may borrow from the ASA Library copies of any of the following standards recently received from other countries. Orders may also be sent to the country of origin through the ASA office. Titles are given here in English, but documents are in the language of the country from which they were received. An asterisk * indicates that the standard is available in English as well. For the convenience of readers, the standards are listed under their general UDC classifications. In ordering copies of standards, please refer to the number following the title.

NOTE: A further shipment of English translations of German standards has been received by the American Standards Association, bringing the total number of translated German standards now available to 434. A list of all these standards is available upon request. This list includes prices and information for purchasing copies.

629.11 LAND VEHICLES. TRANSPORT ENGINEERING

Czechoslovakia (CSN)

5 stds for ball-joint and tie-rod sockets CSN 30 1540/4
2 stds for disc wheels for motor vehicles CSN 30 3705/6
2 stds for nuts for disc wheels CSN 30 3751/2
Marking of wheel rims CSN 30 3708
Profiles of rims of the rear tractor wheel CSN 30 3718
2 stds for 20" rubber tires, type eHD, for trucks and buses CSN 63 1174/5

France (AFNOR)

Turnbuckle for tie rod NF R 126-07
Tail reflector, central mounting of NF R 143-15
Tail reflector, two-point mounting of NF R 143-16
Trailer coupling device NF R 411-03

Germany (DNA)

Material for re-capping automobile tires DIN 7751

Japan (JISC)

Laminated springs for vehicles JIS B 2701

Poland

Tire tools PN S-61064

669 METALLURGY

Austria (ONA)

Aluminum alloys for kneading ONORM M 3430

Belgium (IBN)

Cast iron and ferro-alloys (definitions, classification and designation) NBN 520
Content of copper in steel and cast iron. Gravimetric method NBN 526

Canada (CSA)

Specifications for structural steel G40 series

Czechoslovakia (CSN)

Blast furnace cast iron, terminology CSN 42 0041
5 stds for chemical analysis of ferro-alloys CSN 42 0554/8
4 stds for nickel and cadmium anodes CSN 42 1333,-42 8317,-3404,-6,-3853
2 stds for technical iron, chemical analysis of CSN 42 0524/5

France (AFNOR)

Steel bucket for slag (8 m^3 capacity) NF A 72-112
Chemical analysis of lead: determination of silver and gold content NF A 06-502
2 stds for semi-finished metal and non-ferrous alloy products. Zinc plates, sheets and strips. Specifications, tests, and dimensions NF A 55-601, 67-551
Galvanizing (hot). Immersion in melted zinc NF A 9?-121
Chemical analysis of magnesium and magnesium alloys: determination of aluminum content NF A 06-591
Chemical analysis of magnesium and magnesium alloys: colorimetric determination of copper content NF A 06-592

Spain (IRATRA)

Fatigue test of metals. Definitions and symbols UNE 7117
Quantitative determination of silicium content in aluminum alloys UNE 7126
Determination of manganese content in "Cuzin" (copper-zinc) alloys UNE 7143

Sweden (SIS)

8 stds for round bars of different grades of steels SIS 12 11 02/3, 12 11 05/10
4 stds for machine steel, types 1350, 1450, 1550, 1650 SIS 14 13 50,-14 50,-15 50,-16 50
2 stds for plain carbon steel, types 1500 and 1600 SIS 14 15 00,-16 00
Copper, round rods, cold drawn SIS 12 21 01
4 stds for brass rods, round, cold drawn SIS 12 21 10/13
2 stds for brass rods, hexagon, cold drawn SIS 12 21 41/2

United Kingdom (BSI)

H-section steel arches for use in mines BS 227:1959
Nickel-copper alloy: Castings BS 3071:1959
Nickel and nickel alloys: Tube BS 3074:1959
Copper sulphate test and visual examination of hot dip galvanized and sherardized coatings BS 729:1959
Methods for the analysis of iron and steel: Nitrogen in steel BS 1121:Part 39:1959
Magnesium and magnesium alloy ingots and castings for general engineering purposes BS 2970:1959
Nickel and nickel alloys: Sheet BS 3072:1959
Nickel and nickel alloys: Strip BS 3073:1959
Nickel and nickel alloys: Wire BS 3075:1959
Nickel and nickel alloys: Rods and sections BS 3076:1959
Methods for the analysis of iron and steel: Tungsten in iron and steel BS 1121:Part 40:1959
High carbon bright steel (silver steel) BS 1407:1959
Mechanical testing of steel at elevated temperatures: Determination of proof stress BS 3082:Part 1:1959
Hot-dipped galvanized corrugated steel sheets for general purposes BS 3083:1959
Aluminum alloy sections for marine purposes BS 2614:1959
Steel wire for cold forged high tensile bolts and similar components BS 3111:1959

77 PHOTOGRAPHY AND CINEMATOGRAPHY

Czechoslovakia (CSN)

Spool for double 8 mm film CSN 19 8181

Germany (DNA)

Film, measurements DIN 4515
Film roll for 8 mm double daylight film DIN 15822

Japan (JISC)

Tripod connections for camera JIS B 7103
Tripods for camera JIS B 7118
Range finder for camera JIS B 7119
13 stds for sizes of different roll films, cut films, film packs, etc, of general purpose JIS K series 75

United Kingdom (BSI)

Hydroquinone (quinol, p-dihydroxybenzene): Photographic grade BS 3103:1959
Methol (p-methylaminophenol sulphate): Photographic grade BS 3105:1959
Recommendations for density and contrast range of monochrome films, slides and photographic opaques for television BS 3115:1959

News Briefs . . .

• The latest edition of the American Standard Petroleum Refinery Piping Code, B31.3-1959, has been approved by the American Standards Association and published by The American Society of Mechanical Engineers. This marks the first time it appears separately from the rest of the American Standard Code for Pressure Piping, B31.1-1955, of which it used to form a part of Section 3.

Although the revision is still part of the Code, its new size made separate publication a necessity for easier reference and handling. This is the second section of the B31 series on pressure piping to be published separately; American Standard Code for Gas Transmission and Distribution Piping Systems, B31.8-1958, was published earlier this year.

In its new form, the Petroleum Refinery Piping Code has been extensively revised and brought up to date, and many additions have been made. Under ASA Sectional Committee B31 on Pressure Piping, sponsored by The American Society of Mechanical Engineers, an orderly procedure has been set up for interpretation and proposed revision of the Code through the issuance of "cases." These are the committee's replies, published in MECHANICAL ENGINEERING and in THE MAGAZINE OF STANDARDS, to requests it has received for interpretation (for most recent cases and discussions of B31.-8-1958, see page 286).

Case rulings issued by the committee since the previous revision of the Petroleum Refinery Piping Code in 1955 were incorporated in the new edition, clarifying certain sections and providing uniform interpretation and usage.

Section 3 includes: (1) material specifications and component standards which have been accepted for Code usage; (2) the designation of proper dimensional standards for the elements comprising piping systems; (3) requirements for the design of component parts and assembled units, including necessary pipe supporting elements; (4) requirements for the evaluation and limitation of stresses, reactions, and movements associated with pressure, temperature, and external forces; (5) requirements for the fabrication, assembly and erection of piping systems; (6) requirements for testing and inspecting of elements before assembly or erection and of the completed systems after erection.

In general, Section 3 covers all piping within the property limits of a petroleum refinery, loading terminal, gas processing plant, bulk plant, compounding plant, or refinery tank farm, as well as interconnecting lines between separate sections of a refinery. It applies to all fluids, including fluidized solids, and to all types of services, including oil, gas, steam, air, water, chemicals, and refrigerants.

Work on a code for pressure piping began in 1926, when a standards project was initiated under ASA procedures with ASME as sponsor. The Code was developed by ASA Sectional Committee B31, composed of representatives of some 40 different engineering societies, industries, government bureaus, institutes, and trade associations.

It was first published in 1935 as American Tentative Standard Code for Pressure Piping. Since then, more than nine supplements and revisions have been published, in addition to the constant work on published cases.

Chairman of Sectional Committee B31 is F. S. G. Williams, Taylor Forge and Pipe Works, Inc. Chairman of the subcommittee on petroleum refinery piping is C. C. Martini, Phillips Petroleum Company, who succeeded J. P. Mooney, Humble Oil & Refining Co, in January 1959. More than 40 engineers in the field of design, engineering, construction, operation, and testing represented oil companies, technical societies, pipe and fitting manufacturers, and engineering firms on the revision work for the new edition.

Copies of American Standard Code for Pressure Piping, Petroleum Refinery Piping, B31.3-1959, are available at $4.00. American Standard Code for Gas Transmission and Distribution Systems, B31.8-1958, published earlier this year, is available at $2.50 a copy.

Other sections of the Code for Pressure Piping will be published separately in the future. Until then, American Standard Code for Pressure Piping, B31.1-1955, is the current national standard for power piping, industrial gas and air piping, refrigerating piping, and chemical industry process piping. It is available at $3.50 a copy.

• *Jan Ollner, manager of the standards department of the Swedish standards association, was given recognition for his services to standardization when he received a certificate as Fellow of the Standards Engineers Society during this year's meeting of the International Electrotechnical Commission in Spain. The presentation was made July 4 by Vice Admiral G. F. Hussey, Jr, USN (Ret.), managing director of the American Standards Association, also a Fellow of the Society. Members of the IEC Council were present. In picture, above, left to right: Admiral Hussey; Dr Ivar Herlitz, IEC president; Mr Ollner.*

• Tiny screws have been providing king-sized headaches for space engineers and scientists. Thinner than a fine needle, they are vital components of the delicate instruments and controls in missiles and rockets.

Until recently, there were no standard screw sizes at those Lilliputian dimensions, and engineers had to design their own screws for every new instrument.

Now a solution has been reached. American Standard Unified Miniature Screw Threads, B1.10-1958, has been approved by the American Standards Association and published by The American Society of Mechanical Engineers. It establishes a new thread series that will go a long way towards simplifying design of space-age instruments, as well as watches and other more down-to-earth miniature mechanisms.

The new standard establishes 14 standard screw thread sizes, with a standard design that covers all of them.

Screws covered by this standard are so tiny that 75,000 of the smallest of them would fit in a thimble. The threads on these are invisible to the unaided eye. The diameters of the screws range from one-hundredth (0.01) inch — about three times the diameter of a human hair —to six one-hundredths (0.06) of an inch.

The new miniature series will allow interchangeability with screws made in many other countries, too. The new series is substantially in agreement with the recently approved Recommendation 68 of the International Organization for Standardization (ISO), and with agreements endorsed by the American-British-Canadian Conference on the Unification of Engineering Standards of 1955.

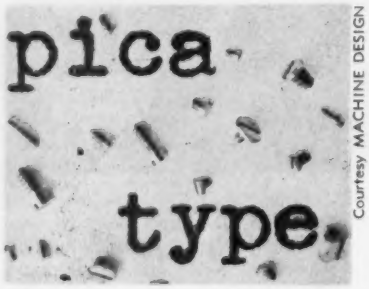
With the establishment of the new series, interchangeability of screws made to any of these standards is assured. In addition, the thread profile established by the new series conforms to that of the Unified and ISO basic profiles for regular screws.

The new standard was drawn up by Subcommittee 4 on Instrument Screw Threads of ASA's Sectional Committee on Screw Threads, B1, sponsored by The American Society of Mechanical Engineers and the Society of Automotive Engineers.

The series covers a diameter range from 0.30 to 1.40 millimeters, or 0.0118 to 0.0551 inch. It supplements the Unified and American Series, which begins at 0.060 inch, number 0 of the machine screw series.

The 14 sizes are distributed systematically through this range, providing a uniformly proportioned selection. A 60-degree thread angle, and a coefficient of 0.52 for thread height, were adopted over the entire range. This coefficient differs from that of the ISO Recommendation, which is established at 0.54127, but the difference is expected to have no practical effect on interchangeability of screws made to either standard. The 0.52 figure is based on practical manufacturing considerations and on a plan evolved to simplify calculations and achieve more precise agreement between metric and inch dimensional tables.

The new standard also establishes tolerances, while ISO Recommendation 68 does not.



Courtesy MACHINE DESIGN

Miniature screws in relation to size of type of commercial typewriter. On these watch screws, major thread diameters range from 0.30 to 0.90 mm (0.118 to 0.354 in.)

• The 1959 Index to German (DIN) standards lists some 10,500 draft and approved standards published by the German standards body, DNA. The new, enlarged edition contains about 1,100 new or revised standards. Titles are shown in German, English, and French and are listed according to their Universal Decimal Classification numbers. Copies of the Index can be obtained from ASA at $4.00 each.

HERMAN C. KOENIG

The American Standards Association and Sectional Committee C39, Electrical Measuring Instruments, have lost a good friend and devoted worker with the sudden death of Herman C. Koenig on July 6. Mr Koenig, manager, electrical laboratory, Electrical Testing Laboratories, had been chairman of Sectional Committee C39 since 1954. He gave active leadership in the work that led to approval of four important and widely used American Standards. He was also a member of other committees on electricity meters, dry batteries, and electric ranges.

Mr Koenig had been with the Electrical Testing Laboratories since his graduation magna cum laude from the Cooper Union Institute of Electrical Engineering in 1915. He became engineer-in-charge (later termed manager) in 1920, and became a member of the Board of Directors in 1953, remaining until his death.

As electrical measurements, from precision measurements in parts per million to high-voltage power measurements, increased steadily in complexity, Mr Koenig took an active part in their standardization. He was a member of the Instruments and Measurements Committee of the American Institute of Electrical Engineers from 1925 to the time of his death (34 years), served as its secretary for four years, as vice-chairman, and as chairman from 1936 to 1938. He was a Fellow of the American Institute of Electrical Engineers, a member-for-life, and a member of its Standards Committee from 1953 to 1959.

In addition to his other activities, he taught physics and electrical measurements in the night school of engineering at Cooper Union for 35 years (1916-1951).

His many friends knew Mr Koenig as an avid and discriminating collector of first editions and exotic literature. He published personally a little magazine of comment on fantasy and science fiction under the title "The Reader and Collector" from 1940 to 1947. He was a member of the Fantasy Amateur Press Association and of the National Amateur Press Association.

He is survived by his wife, their three daughters, and a granddaughter.

AMERICAN STANDARDS

If your company is a member of the American Standards Association, you are entitled to receive membership service copies of these newly published American Standards. Find out who your ASA contact is in your company. Order your American Standards through him. He will make sure your company receives the membership service to which it is entitled.

American Standards Just Published

ELECTRIC AND ELECTRONIC

Interference Output of Television Receivers in the Range of 300 to 10,000 kc, Methods of Measurement, C16.25b-1959 (Supplement to C16.25-1955) $0.50

Sponsor: Institute of Radio Engineers

Measurement of Direct Interelectrode Capacitance, C60.6-1959 (Revision of C60.6-1952) $1.50

Sponsor: Joint Electron Devices Engineering Council

MECHANICAL

Taps—Cut and Ground Threads, B5.4-1959 (Revision of B5.4-1948) $2.50

General dimensions and tolerances of machine screw and pipe taps. A number of different styles of taps are given, also details for the shanks. Terminology, definitions, and method of marking taps are included. The Unified Screw Thread System has been incorporated in this standard.

Sponsors: American Society of Tool Engineers; Metal Cutting Tool Institute; National Machine Tool Builders' Association; Society of Automotive Engineers; American Society of Mechanical Engineers

SAFETY

Recording and Measuring Work Injury Experience, Method of, Z16.1-1954 (R1959) $0.50

Sponsors: National Safety Council; Association of Casualty and Surety Cos.-Accident Prevention Dept

In Process for Approval and Publication as American Standards

Status as of August 19, 1959

BUILDING AND CONSTRUCTION

In Standards Board

Door and Frame Preparation for Mortise Door Locks, Specifications for, A115.1-

Door and Frame Preparation for Bored or Cylindrical Locks for 1¾-in. Doors, Specifications for, A115.2-

Door and Frame Preparation for Bored or Cylindrical Locks for 1⅜-in. Doors, Specifications for, A115.3-

Door and Frame Preparation for Lever Extension Flush Bolts, A115.4-

Sponsor: National Builders Hardware Association

Dry-Set Portland Cement Mortar, Specification for, A118.1-

Sponsor: Tile Council of America

Areas in Hospitals and Related Facilities, Method of Determining, Z65.4-

Sponsors: National Association of Building Owners and Managers; Office of Education, Dept of Health, Education and Welfare

DRAWINGS, SYMBOLS AND ABBREVIATIONS

In Board of Review

Graphical Symbols for Welding, Y32.3-[Revision of Z32.2.1-1949 (R1953)]

Sponsors: American Society of Mechanical Engineers; American Institute of Electrical Engineers

In Standards Board

Letter Symbols for Feedback Control Systems, Y10.13-

Letter Symbols for Rocket Propulsion, Y10.14-

Sponsor: American Society of Mechanical Engineers

ELECTRIC AND ELECTRONIC

American Standards Approved

National Electrical Code, C1-1959 (Revision of C1-1956)

Sponsor: National Fire Protection Association

Definitions of Electrical Terms: Group 45—Electromechanical Devices, C42.-45-1959 (Partial revision of C42-1941)

Sponsor: American Institute of Electrical Engineers

Rigid Steel Conduit, Zinc Coated, Specification for, C80.1-1959 (Revision of C80.1-1953)

Kigid Steel Conduit, Enameled, Specification for, C80.2-1959 (Revision of C80.2-1953)

Electrical Metallic Tubing, Zinc Coated, Specification for, C80.3-1959 [Revision of C80.3-1950 (R1953)]

Sponsors: American Iron and Steel Institute; National Electrical Manufacturers Association

In Standards Board

Distribution, Power, and Regulating Transformers and Reactors Other Than Current-Limiting Reactors, Requirements, Terminology, and Test Code for: Section 20—Overhead-Type Distribution Transformers, 67,000 Volts and Below, 500 kva and Smaller, C57.-12.20- (Revision of C57.12.20-1958)

Sponsor: Electrical Standards Board

Insulation Resistance of Electrical Insulating Materials, Methods of Test for, ASTM D 257-58; ASA C59.3-(Revision of ASTM D 257-54T; ASA C59.3-1955)

Woven Cotton Tapes for Electrical Purposes, Specifications for, ASTM D 335-51; ASA C59.39-

Sponsor: American Society for Testing Materials

Withdrawal Being Considered

Power-Operated Radio Receiving Appliances, Safety Standard for, C65.1-1954

Sponsor: Underwriters' Laboratories

MATERIALS HANDLING

In Board of Review

Pallet Sizes, MH1.1-

Sponsors: American Society of Mechanical Engineers; Society of Packaging and Handling Engineers

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MECHANICAL

In Standards Board

Drill Drivers, Split-Sleeve, Collet Type, B5.27- (Revision of B5.27-1951)
Sponsors: American Society of Tool Engineers; Metal Cutting Tool Institute; National Machine Tool Builders' Association; Society of Automotive Engineers; American Society of Mechanical Engineers

Throw-Away Carbide Inserts, Specifications for, B80.1-
Sponsor: Cemented Carbide Producers Association

Standard Submitted

High Speed and Cast Nonferrous Single Point Tools and Tool Holders, B5.29-
Sponsors: American Society of Tool Engineers; Metal Cutting Tool Institute; National Machine Tool Builders' Association; Society of Automotive Engineers; American Society of Mechanical Engineers

MISCELLANEOUS

Reaffirmation Being Considered

Practice for Certification Procedures, Z34.1-1947
Sponsor: Association of Consulting Chemists and Chemical Engineers

OFFICE EQUIPMENT AND PROCEDURES

In Standards Board

Paperwork Procedures Charting, X2.3.4-

Remote Dictation Through an Intercommunication Switching System, Minimum Requirements for, X2.5.21-

PHOTOGRAPHY

In Standards Board

35-Millimeter Film Magazines and Film for Still Picture Cameras, PH1.14-
Sponsor: Photographic Standards Board

Reaffirmation Being Considered

16mm Positive Aperture Dimensions and Image Size for Positive Prints Made from 35mm Negatives, PH22.46-1946

Negative Aperture Dimensions and Image Size for 16mm Duplicate Negatives Made from 35mm Positive Prints, PH22.47-1946

Enlargement Ratio for 16mm to 35mm Optical Printing, PH22.92-1953
Sponsor: Society of Motion Picture and Television Engineers

PIPE AND FITTINGS

In Board of Review

Seamless Carbon-Steel Pipe for High-Temperature Service, Specifications for, ASTM A 106-58T; ASA B36.3- (Revision of ASTM A 106-55T; ASA B36.3-1956)

Electric-Fusion (Arc) Welded Steel Pipe (Sizes 4 in. and Over), Specifications for, ASTM A 139-58T; ASA B36.9- (Revision of ASTM A 139-55; ASA B36.9-1956)

Seamless Steel Boiler Tubes, Specifications for, ASTM A 83-58T; ASA B36.12- (Revision of ASTM A 83-56T; ASA B36.12-1958)

Electric-Resistance-Welded Steel and Open-Hearth Iron Boiler Tubes, Specifications for, ASTM A 178-58T; ASA B36.13- (Revision of ASTM A 178-56T; ASA B36.13-1958)

Medium-Carbon Seamless Steel Boiler and Superheater Tubes, Specifications for, ASTM A 210-58T; ASA B36.15- (Revision of ASTM A 210-55T; ASA B36.15-1956)

Welded and Seamless Open-Hearth Iron Pipe, Specifications for, ASTM A 253-58; ASA B36.23- (Revision of ASTM A 253-55T; ASA B36.23-1956)

Seamless Low-Carbon and Carbon-Molybdenum Steel Still Tubes for Refinery Service, Specifications for, ASTM A 161-58T; ASA B36.27- (Revision of ASTM A 161-55T; ASA B36.27-1956)

Seamless Cold-Drawn Low-Carbon Steel Heat-Exchanger and Condenser Tubes, Specifications for, ASTM A 179-58T; ASA B36.28- (Revision of ASTM A 179-56T; ASA B36.28-1958)

Seamless Cold-Drawn Intermediate Steel Heat-Exchanger and Condenser Tubes, Specifications for, ASTM A 199-58T; ASA B36.29- (Revision of ASTM A 199-56T; ASA B36.29-1958)

Seamless Intermediate Alloy-Steel Still Tubes for Refinery Service, Specifications for, ASTM A 200-58T; ASA B36.30- (Revision of ASTM A 200-55T; ASA B36.30-1956)

Seamless Carbon-Molybdenum Alloy-Steel Boiler and Superheater Tubes, Specifications for, ASTM A 209-58T; ASA B36.31- (Revision of ASTM A 209-55T; ASA B36.31-1956)

Electric-Resistance-Welded Steel Heat-Exchanger and Condenser Tubes, Specifications for, ASTM A 214-58T; ASA B36.32- (Revision of ASTM A 214-56T; ASA B36.32-1958)

Electric-Resistance-Welded Carbon-Molybdenum Alloy-Steel Boiler and Superheater Tubes, Specifications for, ASTM A 250-58T; ASA B36.34- (Revision of ASTM A 250-55T; ASA B36.34-1956)

Seamless and Welded Steel Pipe for Low-Temperature Service, Specifications for, ASTM A 333-58T; ASA B36.40- (Revision of ASTM A 333-55T; ASA B36.40-1956)

Seamless and Welded Steel Tubes for Low-Temperature Service, Specifications for, ASTM A 334-58T; ASA B36.41- (Revision of ASTM A 334-55T; ASA B36.41-1956)

SAFETY

American Standard Approved

Safety Code for Powered Industrial Trucks, B56.1-1959 (Revision of B56.1-1955)
Sponsor: American Society of Mechanical Engineers

In Standards Board

Installation of Blower and Exhaust Systems for Dust, Stock, and Vapor Removal or Conveying, Z33.1- (Revision of Z33.1-1950)
Sponsor: National Fire Protection Association

NEW

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American Standard Z16.1-1954 has been reaffirmed as up to date for current use. However, to help in using the standard, Committee Z16 has included two new sections in the Appendix.

NEW

(1) **Interpretation of 5.2 on Back Injuries**

This new section suggests questions that may be used to determine the reportability of specific cases and tells how to interpret answers to these questions.

(2) **Disability Injury Index**

A formula is suggested by which frequency and severity may be combined into a single index of disabling injuries. The formula can be used to rank work injury experience from "best" to "worst;" or, by taking the square root of the index, to compare the degree of difference between two units or to determine percentage of improvement.

Order the reprinted REAFFIRMED American Standard Z16.1-1954 (R1959) from

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NEWS ABOUT AMERICAN STANDARDS PROJECTS

RF Radiation Hazards, C95—
Sponsors: American Institute of Electrical Engineers; Bureau of Ships, Department of the Navy

This new project has now been formally initiated by the American Standards Association with the approval of the sponsors. The work will be done by a sectional committee and will cover standardization in the field of radio-frequency electromagnetic radiation hazards.

Insulation Coordination, C92—
Sponsors: National Electrical Manufacturers Association; American Institute of Electrical Engineers

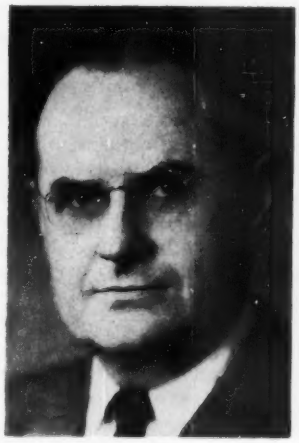
Committee C92 held its first meeting on May 13, 1959. At this meeting the scope of the committee was modified and a recommendation made to change the title of the project to "Coordination of Electric Power Apparatus, Equipment, and Systems." The proposed revisions are now before the sponsors.

E. M. Hunter, new chairman of C92, reports the following: "The scope of ASA Sectional Committee C92 covers many areas which will require mature consideration and study. Among those demanding immediate attention are:

"1) The preparation of an American Standard on an array of BILs (basic insulation level) which can be used by the various product-standardizing bodies in selecting equipment of BILs.

"2) The establishment of an American viewpoint and provision for the coordination of American opinion and practices with the work of the IEC with regard to standard voltages, current ratings and frequency; insulation coordination; and extra-high voltages.

"Work is actively under way in these categories."



E. M. Hunter

Mr Hunter is manager of general engineering, Electric Utility Engineering Section, General Electric Co. He is a graduate from Worcester Polytechnic Institute and Union College (BS, EE, MS). He has been with GE since 1925. Mr Hunter is active in national and international standardization work and is a Fellow of the American Institute of Electrical Engineers. He has made numerous contributions to electrical science literature.

Facilities in Public Buildings for Persons with Physical Handicaps, A117—
Sponsors: President's Committee on Employment of the Physically Handicapped; National Society for Crippled Children and Adults

This new project has been officially approved and organization of the sectional committee is being undertaken by the sponsors. The scope of work will include standards for treatment of all architectural and design features and facilities which affect the use of buildings by persons with physical handicaps, taking into consideration all buildings used by the public and all types of physical disability.

Electrical Insulating Materials in General, C59—
Sponsor: American Society for Testing Materials

K. N. Mathes, insulation systems engineer, General Engineering Laboratory, General Electric Company, recently became vice-chairman of this active committee. Long-time chairman of the committee is Dr A. H. Scott, National Bureau of Standards. F. Y. Speight, American Society for Testing Materials, is secretary.

The committee has met twice since October 1958 and processed

K. N. Mathes

12 standards for submittal to the American Standards Association. Two others were referred back to the originating society for slight changes, one was withdrawn because it was not considered to be widely enough used, and one has been referred to another group for rewriting.

Through its subcommittee on international activities, the committee also determines the U.S. viewpoint on international methods of test for electrical insulating materials being prepared by the International Electrotechnical Commission's Technical Committee 15.

The committee's new vice-chairman, Mr Mathes, in his everyday work, is concerned with development, evaluation, and application of insulating materials, particularly as they relate to use in insulation systems for practically every type of electrical equipment.

He is a member of several national technical committees in the American Institute of Electrical Engineers and the American Society for Testing Materials, as well as ASA. At present he is chairman of the AIEE Committee on Electrical Insulation. For several years he has been concerned with international aspects of insulation standardization as they are being developed in the IEC technical committee.

Through such committee activity and numerous technical papers, Mr Mathes has promoted new insulation concepts, particularly for functional evaluation of insulating materials and their temperature classification.

Code for Pressure Piping, B31—

Sponsor: The American Society of Mechanical Engineers

Interpretations of 1955 Code submitted by the sponsor.

From time to time certain actions of Sectional Committee B31 are published for the information of interested parties. While these do not constitute formal revision of the Code, they may be utilized in specifications, or otherwise, as representing the considered opinions of the committee.

Pending revision of the Code for Pressure Piping, ASA B31.1-1955, the sectional committee has recommended that ASME, as sponsor, and ASA publish selected interpretations so that industry may take immediate advantage of corresponding proposed revisions. Cases 38 (reopened) and 41 are published herewith as interim actions of Sectional Committee B31 on the Code for Pressure Piping that will not constitute a part of the Code until formal action has been taken by the ASME and by the American Standards Association on a revision of the Code.

CASE No. 38 (Reopened)

Inquiry: May piping components made of Nodular Cast Iron and to the dimensions of American Standards B16.1-1948 (R1953), Cast-Iron Pipe Flanges and Flanged Fittings, Class 125; B16b-1944 (R1953), Cast-Iron Pipe Flanges and Flanged Fittings, Class 250; and B16.5-1957, Steel Pipe Flanges and Flanged Fittings, be used in construction under the jurisdiction of Sections 1, 2, and 3 of the Code for Pressure Piping, ASA B31.1-1955?

Reply: It is the opinion of the committee that, pending the completion of studies now in progress in Sectional Committees B16 and B31, Nodular Cast Iron components made of material conforming to ASTM Specification A395-56T may be used under the sections indicated in the inquiry under the following conditions:

(a) Components whose dimensions conform to ASA B16.1 and B16b may be used at the following maximum pressure temperature ratings at temperatures between —20 F and 650 F.

DIMENSIONS USED	MAXIMUM RATING
Class 125 C.I. (B16.1)	80% of 150 lb Carbon Steel (B16.5)
Class 250 C.I. (B16b)	80% of 300 lb Carbon Steel (B16.5)
150 to 600 lb Steel, inclusive (B16.5 or API 600)	80% of Carbon Steel rating

These ratings are applicable to values providing that the values in other respects merit these ratings. It is recognized that components made to the Class 125 and Class 250 standards or to API Std 600 may be thicker than those made to the 150-lb and 300-lb standards, respectively. In the case of these thicker components the additional wall thickness may be considered as additional corrosion allowance.

(b) Until further experience is developed, the pressure at operating temperature shall not exceed 1000 psi.

(c) Welding of the components is not employed in fabricating them in an assembled system.

(d) They shall not be used in lethal service, as defined in each of the sections indicated in the inquiry.

CASE No. 41

Inquiry: Paragraph 632 Sub 4 is somewhat more restrictive than the requirements of other codifying bodies. Under what circumstances may stress relief be omitted on chromium-molybdenum steels?

Reply: It is the opinion of the committee that for applications under Section I of the Code and under Paragraph 632 Sub 4 the following need not be stress-relieved:

Chromium-molybdenum steels with a maximum specified chromium content of 3 percent and a maximum outside diameter of 4 in. and a maximum thickness of less than ½ in. Circumferential joints in the pipe or tubes of the "P" No. 4 steels shall be preheated to 250 F min. and the "P" No. 5 steels shall be preheated to 300 F min.

CASES ANNULLED

CASE No. 9
Eliminate inconsistency

CASE No. 24
Incorporated in B31.8-1958

CASE No. 31
Incorporated in B31.8-1958

B31.8 REVISION PUBLISHED

The latest edition of American Standard Code for Gas Transmission and Distribution Piping Systems, ASA B31.8-1958, has been approved by the American Standards Association and published by The American Society of Mechanical Engineers.

The new edition brings the Code up to date, incorporating many of the rulings that had been made in the form of cases since 1955, when the first edition of this standard in its enlarged scope was published. Numerous revisions also have been made to clarify certain sections and for uniform interpretation and usage.

This Code is Section 8 of the American Standard Code for Pressure Piping, which is under the supervision of ASA Sectional Committee B31. This committee, sponsored by ASME, has established an orderly procedure for revision of the Code through the issuance of "cases." These are the committee's replies, published in MECHANICAL ENGINEERING and in THE MAGAZINE OF

STANDARDS, to requests it has received for interpretation.

Section 8 covers minimum requirements for the design, fabrication, installation, inspection, testing, and for the safe operation and maintenance of gas transmission and distribution systems, including gas pipelines, gas compressor stations, gas metering and regulating stations, gas mains, and gas services up to the outlet of the customer's meter.

The Code for Pressure Piping deals primarily with engineering requirements for safe design and construction of piping systems. The committee points out that it is not a design handbook, but that it does contain basic reference data and formulas necessary for design.

While the work on the American Standard Code for Pressure Piping dates back to 1926, Section 8 was not published separately until 1952. The purpose was to provide an integrated document for gas transmission and distribution piping that would not require cross-referencing to other sections of the Code. A new subcommittee was organized in 1952 to amplify Section 8 as new materials and methods of construction and operation made it necessary.

In 1955 the subcommittee revised the 1952 edition and considerably expanded its scope. Further experience in the application of the Code resulted in revisions which the subcommittee incorporated in the new edition just published.

F. S. G. Williams, general chairman of the ASA B31 committee, said in announcing the new edition that the American Gas Association was responsible for substantial support and staff assistance to the Section 8 committee.

Much of the subcommittee's work is based on research conducted by the American Gas Association and the ASME Pressure Vessel Research Committee. Chairman of the subcommittee is John H. Carson, vice-president of The East Ohio Gas Company, Cleveland, Ohio. The subcommittee has a membership of approximately 70 engineers drawn from design, engineering, construction, operation, and testing, and also includes several nationally recognized technical consultants.

Copies of American Standard Code for Gas Transmission and Distribution Piping Systems, B31.8-1958, are available at $2.50.

by **Cyril Ainsworth**

DINNSA

(Does Industry Need a National Standards Agency?)

THE FIRST — AND HISTORICALLY OLDEST — method of developing and approving standards, as outlined in the May 1958 issue of THE MAGAZINE OF STANDARDS, is the Sectional Committee Method. When the American Standards Association was first organized it was recognized that its member-bodies and other national groups had developed many standards which, upon acceptance by all groups substantially concerned, could be broadened in significance by becoming truly national in character instead of organizational only. To develop this national acceptance, national committees (called sectional committees) were organized to review the organizational standards. Upon the showing of a consensus of acceptance in original or revised form, the standard received the designation "American Standard."

Today the Sectional Committee Method is used more for the development of new standards than it is for review of standards developed by technical societies, trade associations, governmental agencies, and other national groups. The need for one or more standards on a particular subject is expressed by the groups concerned and agreement is reached on the use of the Sectional Committee Method as the avenue for the development of the proposed American Standards. The Sectional Committee Method consists in the formation of a committee operating under an assigned scope and composed of representatives accredited for the purpose by the various organized groups concerned with the project. When desirable, specially qualified individuals are added to the membership of the committee as members-at-large. The Procedure of ASA states that "the special utility of the Sectional Committee Method consists in the provision, in advance, of such representation that a consensus will be assured and self-evident when the members have approved their completed assignment." This means that the national groups invited to accredit representatives on the committee must be carefully selected so that approval of the completed standard by the representatives will provide the consensus necessary to give assurance that the standard can appropriately receive the designation "American Standard."

Most sectional committees are established under the administrative support and direction of one or more of the organizations principally concerned. These administrative organizations are called sponsors. They make arrangements for the administrative work and provide the necessary facilities for the work including secretarial services. They keep the ASA informed of the progress of the work by providing copies of calls and minutes of meetings, tentative drafts of standards, and copies of the ballot form sent to the sectional committee on approval of the proposed standards.

Upon completion of its work the sectional committee, through its officers, reports to the sponsor, which in turn reports to the ASA. The report of the sponsor includes the results of the ballot on approval of the proposed standard by the sectional committee, and other material pertinent to the establishment of a consensus, and the recommendation of the sponsor as to approval of the standard by ASA as American Standard. To safeguard the judicial character of its approval, ASA requires that the technical qualifications of a proposed standard coming before it for consideration be vouched for by one or more competent bodies. This is an obligation of the sponsor and is the basis of its recommendation to ASA on approval of the standard.

(Continued next month)

WANT TO KNOW

How many American Standards projects have been set up in the field of materials handling?

Who is sponsoring the American Standards project on recording and compiling accident statistics?

Is there an American Standards project to establish standardized abbreviations for the physical sciences and engineering?

Which American Standards Association sectional committee is responsible for establishing the method of determining the ASA rating of photographic film?

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